June 9 1962
Vol. 162—No. 23

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

When telephone trouble is reported, the test desk becomes the nerve center in the search, as in this photograph. According to L. N. Martin, a case of trouble that is not found is just as important to the subscriber as one that is found. See his article, "The Trouble Was Not Found," on page 26.

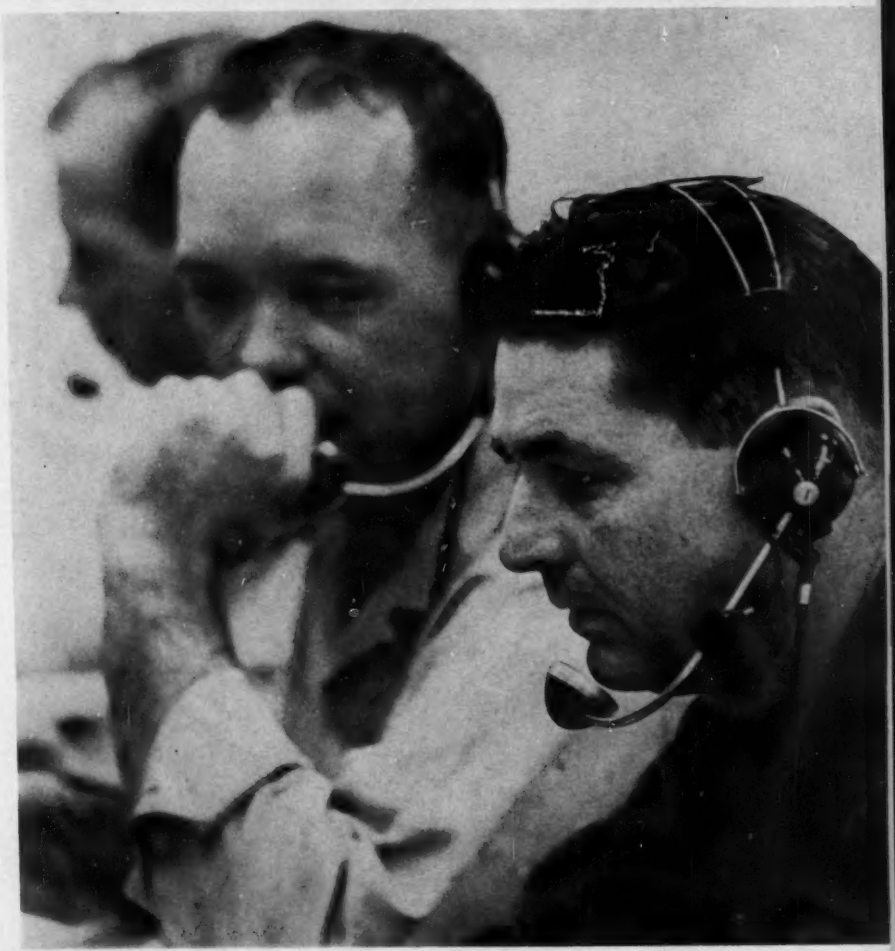

Photo courtesy of Southwestern States Telephone Co.

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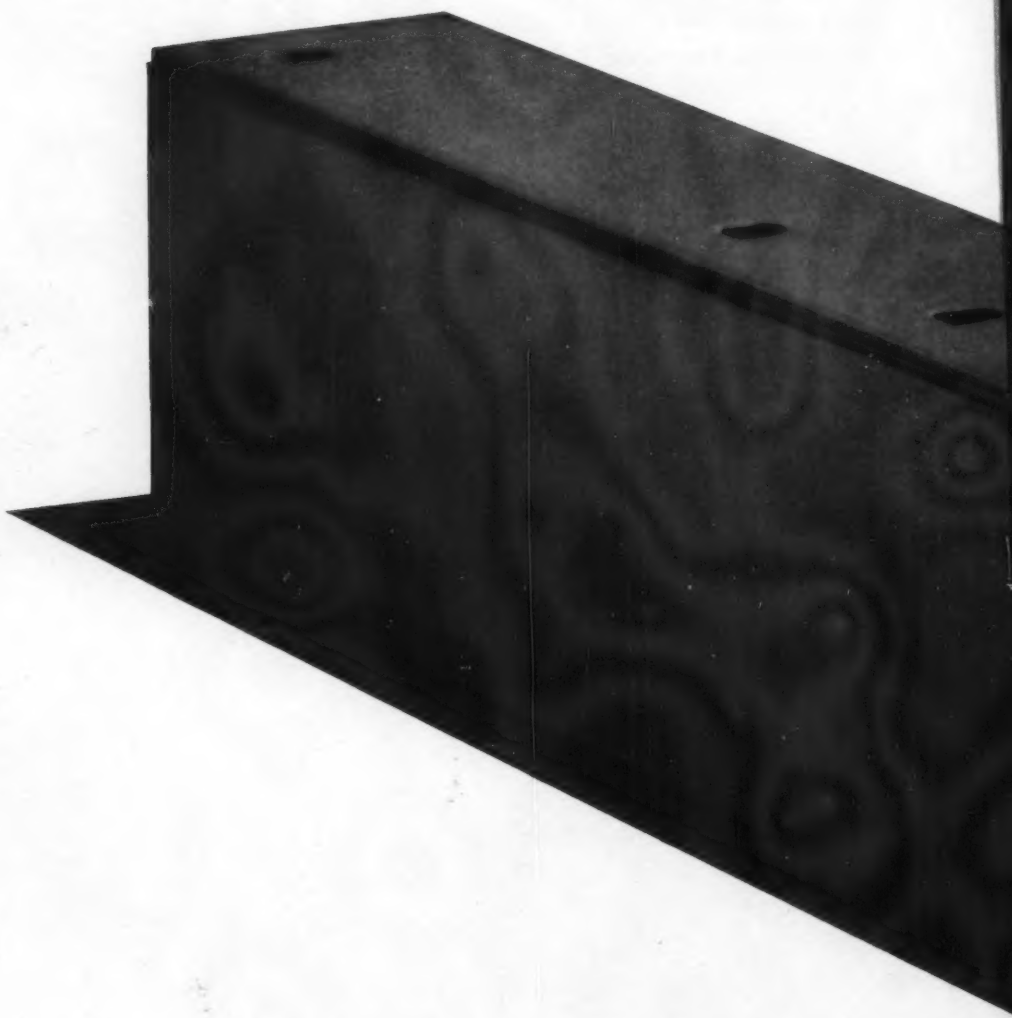

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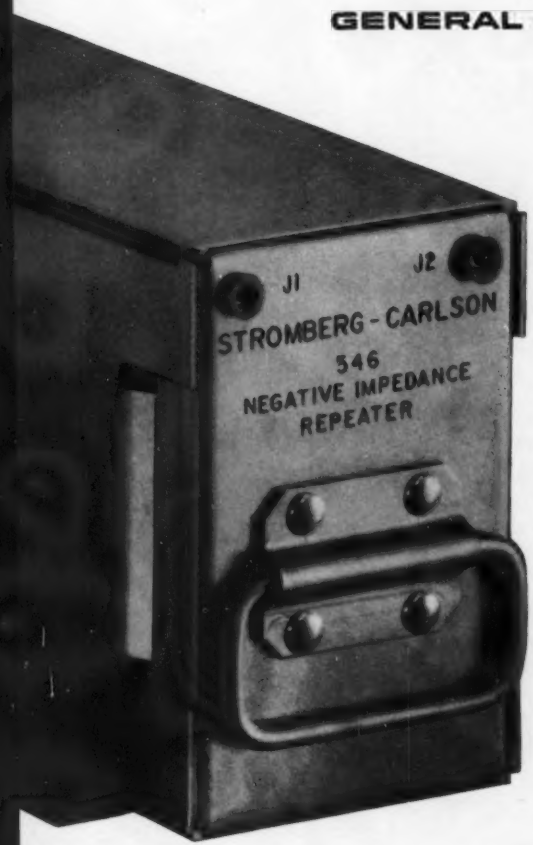
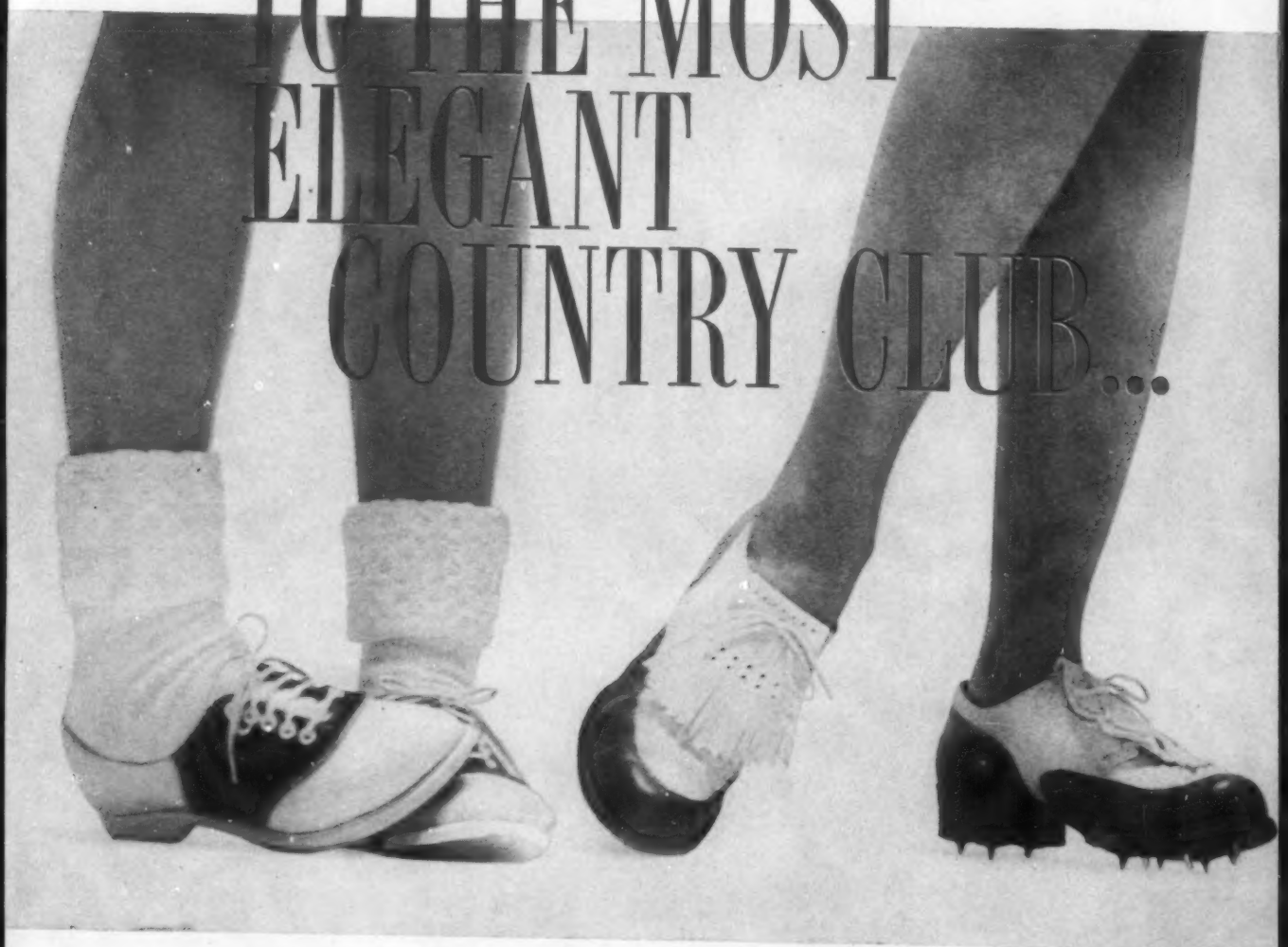


FROM THE CORNER DRUG STORE TO THE MOST ELEGANT COUNTRY CLUB...



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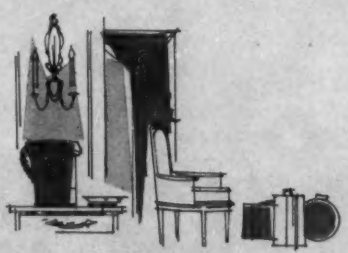

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FLASHES AND PLUGS

INTERNATIONAL PARTY LINE. The Jefferson County, Ky., police force has a problem, the AP reports. Their radio network turns out to be a party line.

Judge Marlow Cook said the trouble lies in a frequency that is too low. The force is considering getting a higher frequency.

In the meantime, officers in the cruisers hear their own dispatcher now and then, plus police radio calls from Toronto, New York, Waco, Tex., and Spanish speaking programs from Mexico, Cuba or Puerto Rico.

•

CENTS-IBLE REPLY. It is reported that Mayor Frank R. Somers of Dayton, O. received a telephone call the other day from a Dayton man who identified himself as a taxpayer who helps pay his honor's salary.

The mayor, who evidently has parried these thrusts many times, responded, "Dayton has 262,000 residents. Your share is less than one cent a year. Since you won't tell me your name, I think you've already had your cent's worth."

•

THAT DID IT. From "The Blue Bell" of Bell Telephone Co. of Canada comes this gem:

A sailor was hauled into court for fighting.

"Your honor," he told the judge, "I was in a telephone booth talking to my girl, and a guy wants to use the telephone. So he opens the door, grabs me by the neck, and tosses me out of the booth."

"Then you got angry?" asked the judge.

"Well, a little," replied the sailor, "but I didn't get really mad until he grabbed my girl and threw her out, too.

•

WUFFIES FOR THE NEW FATHER. Most new fathers run for the nearest telephone to spread the news. Flash, a "British" German shepherd, is no exception.

When a telephone operator in Paddock, England, heard a dog barking over an open line, she thought thieves were in the neighborhood, and called police.

In a garage, the officers found Flash and his mate, Bess, admiring seven newborn pups near an extension telephone that Flash had dislodged in his excitement.

•

THE BIRD'S NOT FREE. In Derby, England, the UPI reported, a man telephoned the police that he was locked in an office building and needed help.

The officers came, let him out, then arrested him for theft.

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Please notify your local postmaster and the Circulation Department of TELEPHONY (608 S. Dearborn St., Chicago 5, Ill.) of change of address. Change cannot be made without the old as well as the new address. Allow three weeks for change of address to become effective.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

SINCE 1901

June 9, 1962

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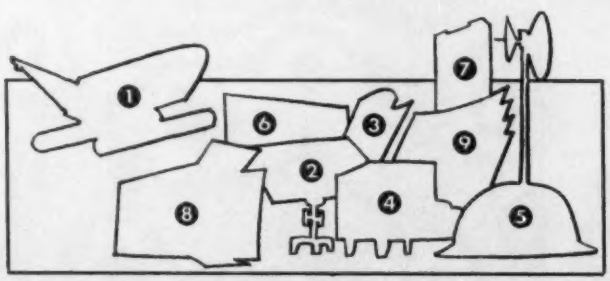

ALL THE ITEMS on the tray represent Lenkurt services: 1 Path surveys, 2 System planning, 3 Engineering specs and drawings, 4 Procurement, 5 Installation, 6 Field training of personnel, 7 Customer training at the Lenkurt factory, 8 Repair and replacement, 9 Equipment drawings.

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BETHLEHEM OVERHEAD GROUND WIRES

Protect New 345-kv Transmission Line

OVER 2 MILLION FEET OF "C" BETHANIZED STRAND USED AS STATIC WIRE

Some 220 miles of 345-kv transmission system is now being constructed between Utica and New York City. Niagara Mohawk Power Corporation is responsible for the 150-mile section from Utica to Poughkeepsie. Consolidated Edison Company is erecting the down-state portion of the facilities, from Poughkeepsie to Yonkers.

Bethlehem is supplying 2,238,720 lineal feet of 7/16-in. extra high-strength, and 623,040 lineal feet of 3/4-in. high-strength steel strand for static wire. Because resistance to corrosion was an important consideration, all strand was Bethanized "C" coated. Bethlehem is also furnishing more than 900 steel towers, and the tower bolts.

Bethlehem manufactures a complete line of steel strand for overhead ground wire, guy wire, and messenger strand. For full details get in touch with the nearest Bethlehem sales office.

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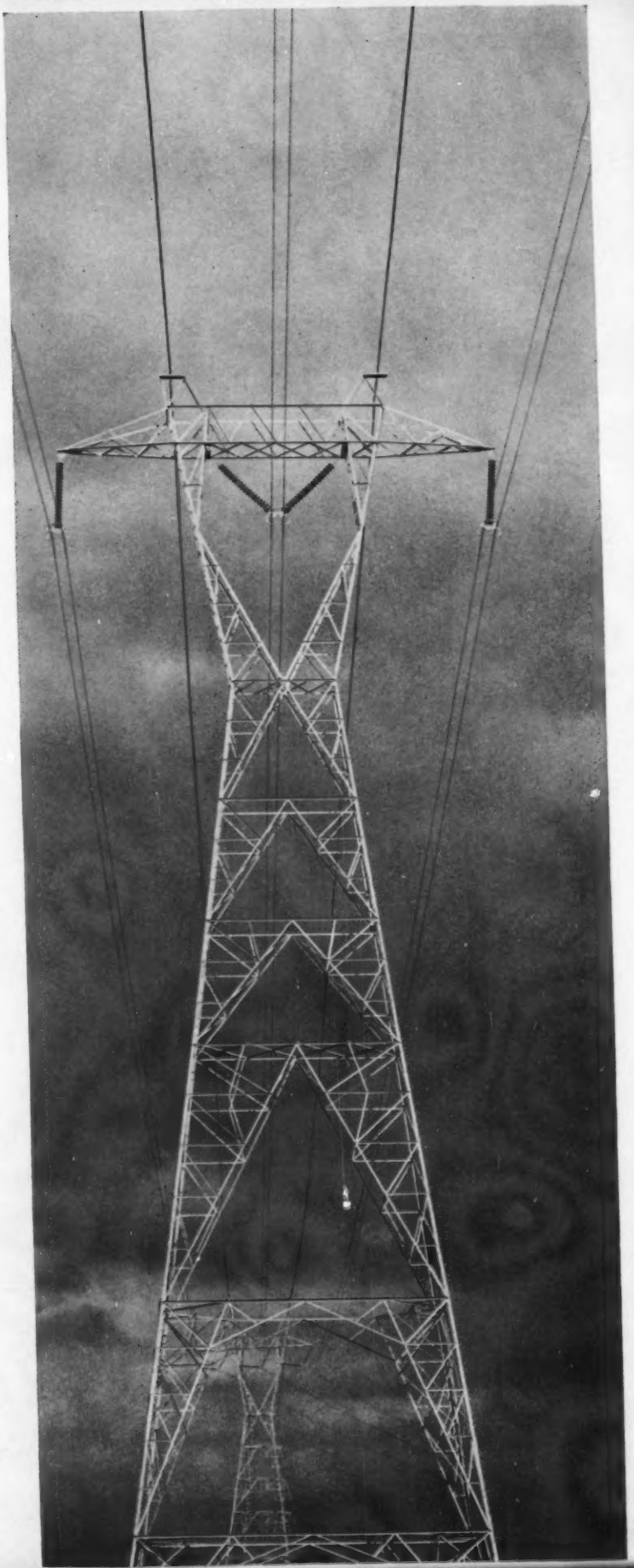


NEW STATIONARY BATTERY OFFERS 20 YEARS' LIFE AT A PASTED PLATE BATTERY PRICE

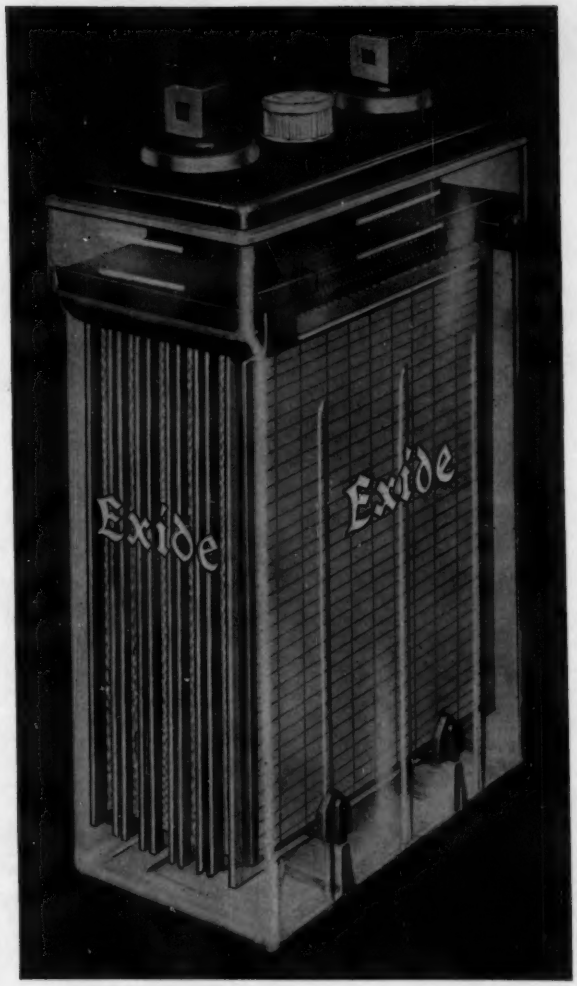
There are only two ways you could get a more economical stationary battery than the new Exide-Ironclad. Get one with longer life for the same price. Or get one with the same life at a lower price. We don't think either is possible.

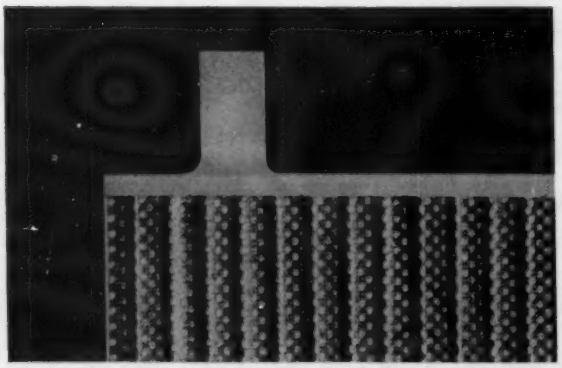
This is a battery designed for 20-year life potential. Yet it is priced right down at the level you would expect to pay for a pasted plate battery. It saves you money in the two most important ways: low original price and low annual cost.

Compare an Exide-Ironclad with other stationary batteries and you'll notice something else too. It's lighter—saves you up to 50% on shipping charges and floor loading. And it's more compact—saves up to 50% of floor space needed for your battery. Translate that into additional annual dollars and cents saved.

The Exide-Ironclad tubular positive plate battery was originally designed for tough cycling applications such as electrically powered trucks. During the past 20 years, its long life potential in stationary service has been proven by actual application experience. This new battery, however, is a new basic design and incorporates new features for stationary use that make it vastly superior — with even longer life potential and greater dependability.

The complete Exide battery line for telephone service also includes the pasted plate Exide-Tytex with Silvium* or calcium grids, the long-life Exide-Manchex Planté Battery, and the low-maintenance pocket positive nickel-cadmium. Only Exide offers so broad a line to meet your needs.





The Exide-Ironclad positive plate — Active material is held firmly captive inside the square-shaped tubes—in good contact with the corrosion-resistant Silvium grid. Thousands of tiny openings give free access to electrolyte, prevent escape of active material. This unique construction results in long battery life, plus more power per pound of material and unit of volume than any other stationary battery.

For maximum economy—the Exide Power Package

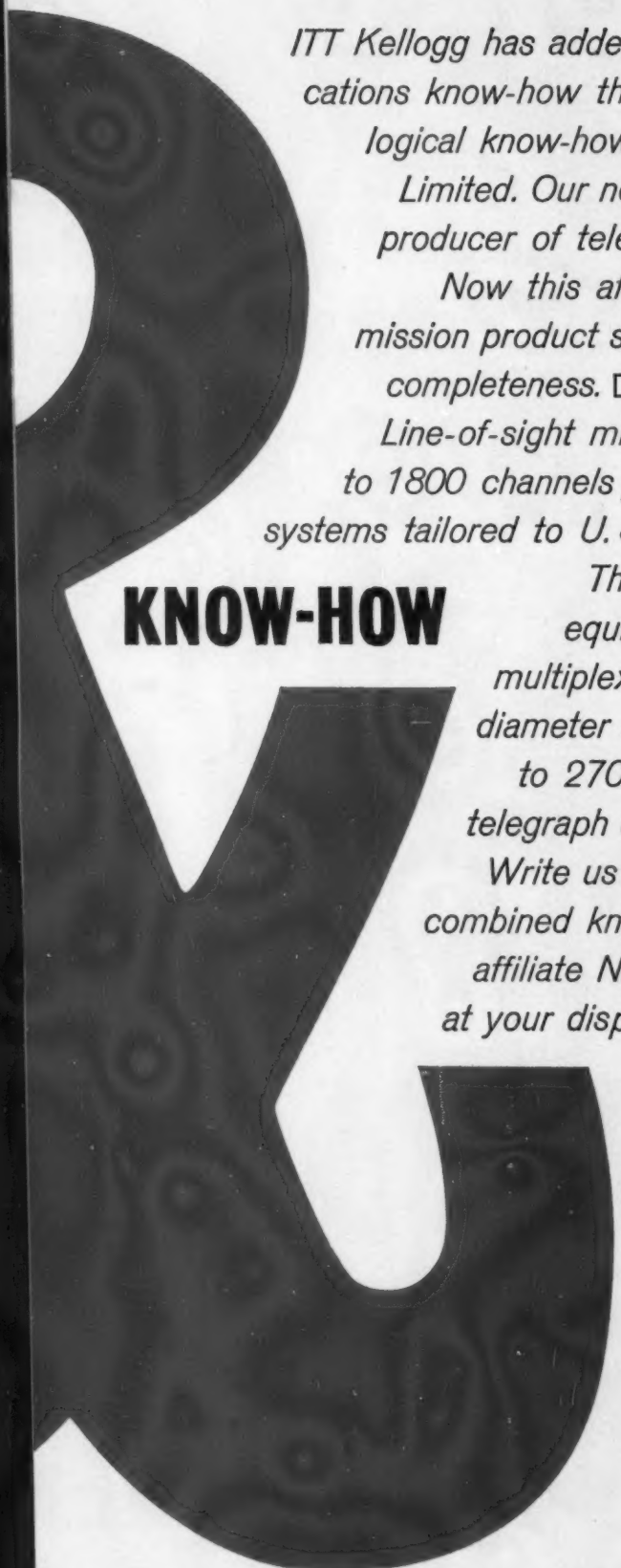
There are three parts to your total battery expense: the battery itself, the rectifier, and service required. Exide offers this complete power package from one dependable source. You get the battery you need, the rectifier to meet your battery requirements, and the service of factory trained, factory-supervised technicians to keep both battery and rectifier in top condition. Write for complete information. Exide Industrial Marketing Division, The Electric Storage Battery Company, Philadelphia 20, Pa.

*Silvium is Exide's patented grid alloy, proved up to 100% more corrosion resistant than regular lead-antimony grids.

Exide®

INDUSTRIAL MARKETING DIVISION
The Electric Storage Battery Company (ESB)

KNOW-HOW



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2912 WAKE FOREST ROAD, RALEIGH, NORTH CAROLINA

HOW THE

AE FINANCE PLAN

HELPS

WHAT THE PLAN IS

The Automatic Electric Finance Plan is a loan program specifically designed for independent telephone companies. It can be used to finance dial conversions, additions, outside plant materials, station apparatus, buildings and other plant requirements.

REASON FOR THE PLAN

Many telephone companies would like to convert to dial and modernize their facilities, but for various reasons find it impractical to resort to the avenues normally used for procurement of the necessary funds. To meet the needs of these companies, AE developed its own finance plan.

3 TYPES OF LOANS

Our finance plan includes three different types of loans: (1) Long Term Loans for major construction such as dial conversions or plant additions; (2) Interim Loans for companies which have long term financing planned, but need funds during the period of construction; and (3) Installment Loans which are made when the principal is to be repaid in five years or less.

ADVANTAGES OF THE PLAN

The only charge on an AE loan is the interest. There is no commitment or loan fee. No mortgage! No prepayment premium!

FOR FURTHER INFORMATION

If you'd like to have more information about the AE Finance Plan, and find out if you qualify for a loan, contact your AE representative. Or, write to Automatic Electric Sales Corporation, Northlake, Illinois.

YOU IN CAPITAL EXPANSION

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NO. 6 OF A SERIES

* The thing to remember about Warren TMR's (Transistor Multi-Ringers) is that they have long been known (at least since the Aztecs, who some say were the first to put in a hurry call during a hurricane) to provide stable, continuous, on-frequency ringing even when commercial power fails.

Here are a few more advantages provided by Warren TMR's:

- Battery operated — does not depend on commercial power.
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- Power savings — requires just 1/3 to 1/10 the power of other ringing generators.

Warren offers a complete line of Transistor Multi-Ringers and Single Frequency Ringers in 25 and 50 watt sizes, none of which look very much like those in the drawing. (We've corrected the situation below.)

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TYPE TPP — Transistor Power Packs

TYPE TMR — Transistor Ringing Generators (25 & 50 Watt)

TYPE TRT — Transistor Ring Talk Power Supplies

TYPE TTG — Transistor Tone Generators

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JUST FOR THE RECORD..... **WARREN WAS FIRST WITH A COMPLETE LINE OF TRANSISTOR RINGING GENERATORS* FOR THE TELEPHONE INDUSTRY**

This is what a Warren Transistor Ringing Generator really looks like.

FIRST IN TRANSISTOR PRODUCTS FOR THE TELEPHONE INDUSTRY

IN THE NATION'S CAPITAL

BY LAWRENCE J. HOGAN, WASHINGTON EDITOR
and President, Larry Hogan Associates,
Public Relations Firm.

FCC Chairman Minow defends public and private ownership of communications satellites . . . . Satellite bill to be reported to Senate soon . . . . Pennsylvania representative proposes that public telephones be permitted along interstate highway system.

LIKE JOSHUA's trumpet, communications satellites could "blow down the walls of ignorance and prejudice," says FCC Chairman Newton Minow.

Speaking in defense of the Kennedy administration's proposal for a communications satellite owned jointly by the public and private communications companies, under federal regulation, Minow appeared before the American Jewish Committee's Washington Chapter on May 25.

He said government ownership was not practical at present because of "bureaucracy and red tape" and insufficient time to recruit the necessary scientific and engineering talent.

The administration's proposal has been approved by the House of Representatives. Minow predicted it would be passed by the Senate "with minor changes" in the near future.

The speaker cited the American Telephone & Telegraph Co.'s Telstar satellite experiment, scheduled for testing late in June. It will be followed by Project Relay and Project Syncom satellite tests. From the three tests, Minow said, "we will find which is best, technically."

Senate to Get Satellite Bill

It is expected that the communications satellite ownership bill will be reported to the Senate floor by the time this issue of TELEPHONY is distributed. The Senate Interstate Commerce Committee has completed its work on the proposal, and a report will be filed as soon as the time has elapsed for the presentation of minority views.

At this writing, committee spokesmen expected the clean bill to be returned from the printer within a week, and 10 days must then elapse, giving time for dissenting opinions to be filed before the proposal goes to the Senate floor for inclusion on the calendar. The bill could be called up for debate any time by the Senate leadership.

Lawyer Speaks on Satellite

John W. McCormack (D., Mass.), Speaker of the House of Representatives, included in his extension of remarks on May 31 a speech entitled "Communications Satellite Legislation and International Cooperation" which he called "splendid and informative."

Delivered by New York City Attorney George J. Feldman before the Federal Bar Association on May 25, the address is a delineation of what obstacles the communications satellite project faces as an instrument for national and international use as well as some of the wonders it will open up when communications satellites become an operational reality.

Feldman, who was formerly director and general counsel for the House Select Committee on Astronautics and Space Exploration, said communications satellites promise ". . . both an efficient extension of existing channels of international communication, and also a revolutionary force in the world whose ultimate political, social, and economic consequences can be seen but dimly at this point."

L. J. HOGAN

These are some of the advantages Feldman sees on the horizon for communications satellites:

(1) They will supplement transoceanic telephone cables at a relatively moderate cost, providing enormous new capacity. Based upon traffic growth in recent years, the satellites will be needed to cope with traffic equivalent to 50 new cables costing several million dollars apiece on key routes such as the North Atlantic.

(2) Communications satellites will open new, dependable links free from the variations in quality—caused by solar disturbances—typical of radio telephony to many additional parts of the world which do not have telephone cable service now.

(3) Communications satellite systems may bring more reduction in total long distance communications costs, as well as improvements in services.

Feldman concluded by stating that the challenge of internationally effective satellites ". . . is up to the wisdom and charity of all nations involved."

Bill Would Extend Telephone Excise

The House Ways and Means Committee has reported out a bill (H.R.

11879) which would cut the 10 per cent tax on airline tickets to 5 per cent, but which would extend for another year other 10 per cent excise taxes, including the levy on local telephone service and long distance calls.

It is anticipated, as in previous years, that some attempt will be made on both the floor of the House and Senate to have the section relating to telephone service stricken or at least reduced. Most observers, however, feel that the telephone tax will be retained since it forms an important source of revenue for the Federal Government. The excise taxes are due to expire on July 1 but unfortunately prompt action on the bill can be expected.

Telephones on Highways

Rep. Herman Toll (D., Pa.) included in his remarks before the House of Representatives on May 31 a resolution passed by the Pennsylvania Assembly which urges the U. S. Congress to make the necessary amendments to the federal highway law in order to permit the installation of public telephones within the rights-of-way of the interstate highway system.

Mr. Toll said the Pennsylvania House passed the resolution during its 1962 session and added he wanted its contents printed in the *Congressional Record* so his colleagues could examine it.

The resolution reads as follows:

"The federal highway law presently prohibits the construction or location of commercial establishments or facilities of any nature on the rights-of-way of the Interstate Highway System.

"The purpose of this prohibition is highly commendable as it is intended to protect the traveling public from dangers and distractions caused by such establishments and also to protect the scenic beauty of the countryside.

"A minor exception to this provision in the federal law, however, appears both desirable and necessary; that exception being authorization for the erection at certain intervals of public telephones.

"The ready availability of public telephones along these highways would make possible the immediate reporting of any accident or other emergency. Such telephones would also add greatly to the convenience of travelers and would not be unsightly: Therefore be it

"Resolved, That the House of Representatives of the Commonwealth of Pennsylvania memorialize the Congress of the United States to make necessary amendments to the federal highway law in order to permit the erection of public telephones within the rights-of way of the interstate highway system; and be it further

"Resolved, That copies of this resolution be transmitted to the presiding officers of each House of the Congress of the United States and to each senator and representative from Pennsylvania in the Congress of the United States."

Of course, this is a situation the U. S. Congress must act on at a very early time. The interstate highway system is creating hundreds of miles of scenic beauty, as well as providing greater driving safety for American motorists. But accidents and emergencies do occur, and nothing can be so heartening to a distressed motorist on a dark and lonely highway as the warm glow of the light from a public telephone station.

REA Approves Two Loans

The Rural Electrification Administration during the last week of May approved two loans totaling $541,000 as follows:

Southern Counties Telephone Corp., Hawleyton, N. Y.: $421,000; May 21.

Southern Counties plans to use these funds to improve service for 503 subscribers and furnish initial service to 279 subscribers in New York and Pennsylvania.

This new borrower, a commercial corporation, was incorporated in May 1961 and has no existing telephone properties. It proposes to acquire through issuance of its own common stock the facilities of the Hawleyton Telephone Co., and to improve and expand the acquired facilities.

The Hawleyton company now furnishes magneto and common battery service to the subscribers.

A new combined dial office and headquarters building will replace the existing central office facilities at Hawleyton.

H. Russell Cammer of 9 East 40th Street, New York 16, N. Y., is president of the Southern Counties Telephone Corp.; and Otto F. Eells of Hawleyton is the local manager.

•

Wyoming Telephone Co., Pinedale: $120,000; May 21.

With the help of this loan, the company plans to furnish initial service for 267 subscribers in the service area. Facilities required to serve the new subscribers will include the installaton of mobile radiotelephone facilities to serve 24 new subscribers in the Pinedale exchange.

The company also plans to use three mobile units for maintenance and operation of its system. In addition, the Wyoming Company proposes to acquire 7½ miles of toll line in its Pinedale exchange area, now owned and operated by the Mountain States Telephone & Telegraph Co.

REA loans to the Wyoming Company will help make possible new and improved service to 1,224 subscribers. Approximately 860 subscribers are now receiving dial service through the borrower's two exchanges.

Brazil Drafts Expropriation Formula

A new Brazilian expropriation decree would establish a commission that would report to the cabinet which companies should be expropriated by the state and would negotiate the terms and compensation to shareholders.

Up to 10 per cent of the total value would be paid immediately, and the rest by installments out of the expropriated companies' profits, keeping foreign exchange payments to a minimum.

At least 75 per cent of the net receipts will have to be invested in Brazilian enterprises specified by the national planning commission, the decree said.

Wiretapping Hot Subject

One of Washington's favorite conversation bones—wiretapping—continues to be chewed in the Capital City with both sides equally sure they are right.

"To tap or not to tap" is guaranteed to spark some hot repartee, and friendships have been split asunder by opinions as unshakable as slavery debaters held in the 1860's.

For instance, two committees of the Association of the Bar of New York City recently split completely over federal wiretap legislation.

The Committee on Federal Legislation told the Senate Judiciary Committee that it could find "no sound reason why Congress should not decide upon a national policy concerning wiretapping, and implement that policy by clear legislation."

That committee's chairman, Edwin L. Gasperini, said the administration's proposal to authorize some wiretaps

(Continued on page 40)

Who will manage tomorrow's industry?
How shall they be chosen?
How will they grow?

FROM COLLEGE TO WORK

By FREDERICK R. KAPPEL*

THE GENERAL theme of this talk grows out of my deep concern for excellence in management, and my conviction that those who are to manage tomorrow's enterprise will need to do so superlatively well. I think the subject comes under the broad charter of these lectures because our national progress, our success in dealing with international problems, our ability to compete in world markets, and our success also in assisting in the development of better living standards in many other countries, all demand the best management of which we are capable.

Every one of us knows that this is a time of upheaval throughout the world; a time of conflict and peril; a time of trial and testing for our nation —for you and for me. And in the determination of the great issues confronting us, it seems to me a decisive factor will be our capacity to manage well under conditions of unprecedented stress. This is not to minimize the need for political and diplomatic skills. My point is rather that with the mixing and mingling of political and economic affairs, both business and government require management of a character that employs and improves all the traditional skills of each. In short, I view the need as demanding every ounce of talent we can summon —and further, an unwavering determination to reach right answers in the interest of all.

Must Do Better Job

Are we doing all that is needed to develop the men who have the drive, the character, and the vision to assert this kind of leadership? Are we doing all we must to draw forth and build the managerial excellence required? I do not think so. I think we must do better.

There is this, too, to say: No generation, no society, no country ever had greater opportunities to achieve, to accomplish, to build a better world. And the heart of my concern is that industry, all industry, and, as an important part of that, the business I know best, should set a new pace in quality of accomplishment.

It is hard to convey my feeling about this, but perhaps if I say a little about what is unfolding before us in just one field, communications, that will help to suggest what I am driving at. You will understand that I use this only as an example.

Revolution in Communications

Even now we are going through a revolution in communications. New technical arts are constantly coming into use, and new methods of provid-

Frederick R. Kappel, chairman of the board, American Telephone & Telegraph Co., at the lectern delivering his address at Westminster college.

*Mr. Kappel is chairman of the board of American Telephone & Telegraph Co., who presented this talk as a Green Foundation Lecture at Westminster College of Fulton, Mo., on April 5.

Westminster College students listen intently to what Mr. Kappel has to say about the kind of people business needs as future managers.

ing new services. High-speed computers and other machines of many kinds are already "talking" to each other, north, south, east, and west. Communication across oceans, to and from all countries of the world, is coming to a stage of extremely rapid development. In the years ahead, over satellite relay systems as well as ocean cables, there will be a new abundance of communicating between the people of different nations; between buyers and sellers, between old and new cultures, between men on earth and explorers in space.

This abundance will comprehend words spoken and written, pictures and data, drawings and diagrams, automatic translation. Across the world and across our own land, in cities and towns and in every community, patterns of living will be profoundly influenced. Industry will need to adopt new forms of organization. Modes of production and distribution will be altered. Teachers and learners will meet in new ways.

Must Teach New Skills

And within our own organization, as the technical arts we employ are transformed, so too are our ways of working. Every new skill we develop we must also teach. In years past we have adjusted to one form of automation—the dial system; and in the years ahead we must carefully plan and carry out a continuing adjustment to the introduction of high-speed computers and other machines. We must deal fairly and wisely with problems of social change. We must prove our purposes to the general public and its elected representatives—also to the unions of our employes and their representatives—and understand their problems if they are to understand ours. We must be constantly alert to government action affecting our business, and press for the kind of action that we believe is right and sound—and we must do this *only* in ways that command self-respect as well as public respect.

How shall we accomplish these things? Shall we get them done with middling effort, a decent observance of regular business hours, a desire to be reasonably well paid, and a convenient flexibility in ethical standards?

Who could think that these would suffice?

To have a part in significant enterprise, to be one of its movers and managers—in industry or in government—is not to fill some niche each morning, and leave it each night as you found it. It is to help build and shape, to plan and to execute, to measure alternatives against the horizon and act on the course that judgment and resolution commend. It is to know that you, and those who are working with you, are accountable for the quality of change, and to develop every resource at your disposal in order to discharge such responsibility as well as you know how.

Should Aspire To Greatness

I do not hesitate to say that business should aspire to greatness, and search diligently for men who will make and keep it great. In numbers, the men who are needed to achieve this can not be counted in dozens, or in hundreds, but in many thousands. Ability and dedication are needed all through a business, not just in the topmost layer. And it is here, right here, that I come to our greatest concern in the business I am in. This is to develop and apply better, surer methods for drawing in and building up the people who can manage the Bell System more effectively in the future than we are doing it today.

We cannot be content to trust to

After the lecture, Mr. Kappel enters into a lively conversation with members of the audience and answers questions about specific points.

luck here. I think we must admit that in the past, to a considerable extent, we have been flying by the seat of our pants. There must be better ways to travel.

I can see three avenues for improvement.

First, how can we better identify *today* who the young people are that can make tomorrow what it ought to be? How can we better predict what a man is likely to do and become?

Second, how can we improve our concepts and tactics of management, so that our ways of working will stimulate men more and hinder them less?

Third, how can we better judge the developing talents of different individuals so that all talent will be used to best advantage?

Similar To Pyramid

I might state the matter this way: A management organization is like a pyramid in which the stones are constantly changing. When you think about the future you know that the middle of the pyramid tomorrow will depend on what is in the base today, and the top will depend on what is in the middle today; and if your judgments about who should be in the base or in the middle *right now* are not good, then heaven help the business. Heaven help it too if you fill the base with potentially strong people and then run the business so that they do not grow up to being what the middle and the top require.

Now in my 38 years in industry I have watched a lot of people all up and down this management pyramid. And I have gained some pretty strong impressions. One of them is this: Most of the men who are doing really A-one jobs—at whatever level you find them in the business—give me the sense that that is how they were made. There is something strong and vital in them. Their abilities may differ in kind and degree, but in them all I can see a certain intentness and steady application. They want to excel and they are determined to work at it.

And when I look into their backgrounds for one reason or another, I have the same sense all over again. Most of them were good students—plus something else. They had these other qualities before the telephone busness ever saw them. Of course, there are exceptions, I realize that. Some people go through great changes in their natures. And some of these men of the kind I am discussing never went to college. But still my thought about them is that if they ever *had* gone to college, they would have been awfully good at it.

So now let's look at that pyramid again—particularly at the base, because here is where it all begins. Everything else depends on this. "Who do we hire?" is the basic question. And I will tell you my own answer: So far as I am concerned, we do our level best to hire the kind of people I have been talking about. This is what our tomorrow needs.

Now I am going to give you another impression that has hit me pretty hard. But I don't want to make this purely personal, because I am sure I am not alone in it. Since the war, we in the Bell System have hired as many as 3,000 college men in a single year. And in doing this we have talked and talked with many thousands more. What has been the result?

First of all, we have hired a great many fine men. Second, we have also had some disappointing and disquieting experiences. Third, we have been made very uneasy, to say the least, by a point of view that a great many young people have made only too clear.

Addiction to Formula

What am I talking about? I am talking about what I will call diplomaship, or addiction to the formula, "from sheepskin to job to success." Under this formula, the purpose of going to college is to get a degree, and the degree, I am sorry to say, is a passport to security.

The thousands of interviews we have had with young men, and our experience with a not inconsiderable number whom we have hired, have brought home to us that among many of them, this misconception is deeply lodged. I do not know the reason for this. I can only ask: Are the schools doing all they can to create a different view? Is the educational process itself organized to motivate, to inspire, to build and test men's full capacity and their will to make the most of themselves and give of their very best?

I am well aware that many schools are determined to turn out disciplined scholars, strong in purpose and anxious to dedicate their talents as they build them. Yet a massive educational process such as we are undertaking in this country runs the great risk of becoming, for thousands and thousands of young people, more a social custom, or, as I have said, a passport to security, than a gateway to their personal growth. And each year, as the numbers increase, and the cost mounts by hundreds of millions, are we not constrained to ask ourselves, "Is this vast effort truly effective? Is the push to get everybody through college being justified by the results? Or is emphasis on quantity getting in the way of quality?"

Attitudes Differ

It hardly needs saying that the attitude of diplomaship, as I have called it, is altogether different from the attitude of the men I was talking about a few minutes ago, the ones who are doing the A-one jobs, the ones who will build vital, progressive industry and a greater nation. In searching out such men, I am sure there is no substitute for good judgment in the people who do the searching. But do we have anything else that can aid in the search? In the Bell System, we have thought we should study the actual

(Continued on page 52)

A view showing Mr. Kappel delivering his address and members of the audience. The speech was a John Findley Green Foundation lecture. The foundation provides for annual lectures designed to promote understanding of economic and social problems of international concern.

COMPETITION:

Collision Or Cohesion?

By PAUL HENSON*

ALL OF US ARE prone to become so involved with daily detail that it requires conscious effort to keep in mind "the big picture" and take an occasional sighting on the important, enduring guideposts by which we should direct our activity. This is an altogether understandable and human failing because that which is present, apparent and demanding of our attention usually gets it.

Sometimes our concentration on a particular little job becomes so important for the moment, and so all-absorbing that we lose our perspective and fail to relate the chore at hand to the bigger goals to which we aspire. This tendency to clutter up our lives and our thinking with little things carries over into our approach to some of the big, important, pressing problems of the day. True it is that in modern society our problems seem to become more and more complex. But the fact remains that if we take a long look at most of these problems that confront us as a people—or as an industry—sound answers become apparent when we think in terms of fundamental underlying principles.

It is in this vein, and with this background, that I propose to discuss with you some of the competitive forces in our industry today and one man's opinion of where these competitive forces are leading us.

Many competitive forces come immediately to mind for all of us. We have heard a great deal about many of these forces. Some suggest logical, clearly-defined courses of action. For some of these, the industry has already found tentative solutions and has initiated appropriate action.

In this area of understandable competitive forces, perhaps the best example where our industry has responded to a need is the competition for the consumer's dollar. The larger companies initially recognized the need for aggressive selling and marketing of our services and proceeded to do something about it. Many of the rest of us caught the idea and began to do something about it ourselves. While I doubt that anyone will claim that they have found all the answers to competitive merchandising, certainly the industry has made a start.

PAUL HENSON

In a similar sense, the industry has recognized the need to be competitive in the field of private line services and has done something constructive by introducing a variety of new service offerings. While concerted opposition is being registered to certain of the tariff filings, there is reason to believe that ultimately the industry will possess some new tools with which to meet the competition for private line services.

There are a number of other competitive forces in the industry today which are neither so clearly defined, nor for which there have been any uniformly adequate solutions advanced. One such group of competitive forces best lends itself to treatment on an individual company basis. These forces can be identified as the competition for personnel, the competition within the industry for operating results and the corollary competition for the investor's attention, his approbation and—finally—his investment dollar.

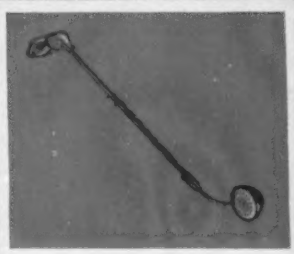
Without intending to minimize any of these important competitive forces, I again choose to avoid a rigorous discussion of these elements of competition, except to voice the personal opinion that they are natural, healthy functions in a Free Enterprise system. Not only do these competitive phases of our business lend themselves to individual analyses and solution, but they have also been discussed widely in recent times. Even if no clearcut pattern of treatment has yet emerged in the industry, at least the problems are recognized.

There is still another category of competitive forces in the industry that is not generally recognized, nor even clearly defined, let alone having received any concerted or coordinated efforts of resolution on the part of the industry. These forces can be identified as government competition and competition for acquisitions, consolidations and merger. It is not coincidental that I group these two competitive forces. Neither is it coincidental that these are the two forces which I intend to discuss today.

In keeping with the introduction, I believe that these two phases of competition could have the greatest impact of any of the competitive forces men-

*Mr. Henson is Executive Vice President of United Utilities, Inc., Kansas City, Mo. He delivered this address at the recent convention of the Indiana Telephone Association.

TALK AND LISTEN—WITH BOTH HANDS ON THE WHEEL!



Boom-Mounted Microphone, fastened to side roof rail, swings up and out of way when not in use.

Control Unit is compact, ultra-reliable. Has built-in speaker, RING and TALK switch, CALL and TALK lamps.

Push-to-Talk Switch is easy to operate. Works like headlamp dimmer switch. Push to talk . . . release to listen.

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Many other features, including 4-channel selection capability and attractive, space-saving design make "HANDS-FREE" the "most wanted" mobile telephone. For more information, write "DELCO-PHONE," Delco Radio Division, Kokomo, Indiana, or call GLadstone 2-8211 (area code 317).

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tioned on the future of the telephone industry. Yet we have heard little public discussion of government competition or acquisition competition. I presume that we refrain from talking about government competition because of political ramifications. Any discussion of present-day acquisition competition is bound to step on some toes. Hence, the obvous way to avoid rancor is to avoid the subject. Perhaps we have taken the easy way too long.

First, let's review the present form and extent of government competition. We are all aware of the classic examples of perpetuation of government ownership and operation. We are also vaguely aware of the numbers involved. Recent testimony before a Senate Small Business Subcommittee elicited the fact that the federal government owned and operated 17,507 businesses, including no less than 150 ice cream plants! The Department of Defense alone was actively engaged in businesses covering 47 categories and running the gamut from coffee roasting to manufacturing surgical and dental equipment. We are also aware that these businesses incur losses for the tax payers running to the billions of dollars each year in spite of the fact that most are tax free, rent free and dividend free.

Directly related to our business pursuits are the numerous military bases where the communications facilities are government owned and operated. In spite of the inefficient and allegedly inadequate service that is being rendered at many such bases, thus far, the government-ownership interests have prevented the passage of legislation that would enable operation by privately-owned telephone companies.

An indication of recent trends can be found in the ownership patterns of communications facilities required at missile launching sites. At the outset of the Nike and Atlas missile installations, the industry was called upon to provide the required control and administrative communications facilities, in keeping with policies of procurement for the SAGE program. This philosophy prevailed for practically all of the Nike installations and most of the Atlas installations. However, before the Titan missile installations had progressed very far, bureaucrats and military empire-builders had convinced themselves that, by ignoring taxes and cost of money, it was cheaper for the government to *own* such facilities. Hence, the majority of the communications facilities at Titan installations are now government-owned.

By the time the industry finally made itself heard, the same devoted group threw in the "military necessity" plea on communications facilities required for the Minuteman missile . . . this is a plea that is difficult for communications people like us to understand, let alone argue. No matter what our status may be, or how high our security clearances, we, as "outsiders," are effectively precluded from disagreement with the nebulous reasons advanced for "military necessity."

The furor that is being raised about the ownership of space satellite communications is another case in point. The government-ownership interests are conducting an intensive campaign that may be successful by default. Some observers believe that unless enabling legislation is obtained during this session of Congress, the system will be government owned. Others believe that, even if permissive legislation is obtained in this session, the control and regulation by the federal government will stifle incentive.

If Cellar, Gore, Kefauver, Morse and other such devotees of a "TVA in Space" can continue their accusations and witch-hunting a little longer, they may be successful. Unfortunately, their success will further the efforts of our non-elected "Invisible Government", comprised of those who are dedicated to the eventual elimination of the Free Enterprise system through the gradual enactment of socialistic legislation.

Grandiose plans are also being laid in Washington for the development of private-line switching networks for a host of special purposes. Such networks as Switched Circuit Automatic Network (SCAN), Federal Telecommunications System (FTS) and Defense Communications System (DCS) are to be leased at the outset. However, to believe that such networks will be leased forever is to ignore present trends and present governmental policies. Once set up, such networks will be covetously sought by the master planners of our economy and, consequently, of our lives.

The foregoing are typical examples of direct competition from the federal government. There are similar forms of direct competition by state and local governments. The extensive radio networks used for police, fire and safety services are illustrative. The advent of educational television is now providing the impetus for another round of governmental competition with the industry.

Aside from the growing specter of direct competition, there is the equally insidious and equally rapid growth of indirect competition. The form and extent of indirect competition is not unique to our industry, but instead encompasses the entire business community. With corporate and private tax rates at the prevailing level, you are most assuredly in competition with government.

Whenever a third party, visible or invisible, sits at the bargaining table, you are in competition with government. Whenever anti-trust laws are used for political purposes, you are in competition with government. Whenever commodity or service prices are set by political coercion and threat of reprisal, you are in competition with government . . . a one-sided kind of competition for which there are but a few countermeasures and all of these difficult of execution. In a Free Enterprise system, individuals can compete with individuals, and companies can compete with companies, but a few individuals or a few companies "can't fight City Hall"—at least, not successfuly, and not for long. The steel industry was forceably reminded of this fact last month.

Consequently, it behooves us in the Independent telephone industry to avoid giving government any reason to intervene further in our business, because government intervention is only an extension of government competition, against which there is no easy recourse.

I submit, however, that we are extending an open invitation for such governmental intervention, so long as we continue to ignore the consequences of still another kind of competition, the acquisition competition, the second competitive force I would like to discuss. It would be unfortunate, indeed, if the entire industry were to be subjected to further regulation and control because of the questionable activities of a few, and, yet, that is a very real possibility today.

What is the cause of all the competition in acquisitions, mergers and consolidations these days? Why are inflated prices being paid for mediocre, even blighted, properties? Why are new holding companies springing up overnight?

There are, of course, the tried and true answers. Such factors as technological advances, personnel requirements, financing modernization and construction costs, and the creation of job and investment security have been advanced as the compelling reasons for integration among telephone companies. In my opinion, however, none of these noble purposes is the real reason for the intense competition in acquisitions today.

Rather, there are a number of contributory reasons, among them being the effect of unrelated pieces of prior legislation which, cumulatively, have produced an entirely new problem

within our industry. Let me outline briefly the chronology of such legislation and the subsequent results.

First of all, the graduated income tax, as well as inheritance taxes, (both the result of legislation) prevented a family-owned, Independent telephone company from generating, or accumulating, sufficient capital to hold an equity position in periods of expansion and modernization.

Consequently, additional legislation was passed in the form of the government's REA lending program to permit small companies to expand and modernize on a minimum of equity capital. This, in turn, has led to practices which are not in keeping with the original good intentions of the REA program.

Taking the lead from the government, certain suppliers and credit institutions decided that the telephone business was a panacea, and they, too, lowered equity requirements. The speculative interests were then presented with a golden opportunity to organize companies which could, and do, trade on extremely thin equities, carry the low-interest debt at the expense of the tax payers, and make inordinate profits through the sale of stock of dubious quality to unsophisticated investors.

The American public gave the newly-formed, speculative companies the boost they had to have. With inflation continuing, seemingly forever, the public decided that the best hedge against such inflation was investment in common stocks, *any* common stocks. With the help of some over-zealous investment bankers, a supply of stock in the speculative telephone companies has been readily available. But it has been controlled so well that market multiples of 50 to 100 times earnings are commonplace during a period when the price of stocks of established, reputable telephone companies is approximately 20 times current earnings.

There's nothing illegal about this. It can even be described as aggressive competition in a Free Enterprise system. And since I am such a staunch advocate of Free Enterprise, why do I object so strongly to the high prices paid for telephone property with high-priced stock? Is it because the competition is getting to be too tough for the company I represent? Is this a "sour grapes" lament?

No, it is not. Let me assure you that my company is not interested in growing bigger solely for the sake of bigness itself, nor is any reputable telephone system that likewise depends exclusively upon sound, orthodox financing and efficient operation for its financial reward. My concern, instead, is for the future of the entire telephone industry, and for the image it presents to the American public.

Let me recall to your minds the turmoil in the electrical and natural gas industries in the late 1920's and early 1930's. That seemed a propitious time for small electrical and gas systems to integrate in the public interest, but the opportunists intervened, turning an orderly, sensible move in that direction into a chaotic scandal.

The language used by *Forbes* magazine in a recent article on the abuses of utility holding companies in the 30's presents a vivid summation of their activities.

> "Often jerrybuilt without regard to geographic reason, some holding companies squeezed operating subsidiaries for 'suitable' returns on inflated capitalizations without regard to earnings. Others wrung exorbitant 'management' fees from operating divisions. Still others flagrantly dodged state regulations, even held back federal income tax payments collected from subsidiaries. Not a few did all these things."

During this scramble, utilities systems were organized, not to effect operating economies, but rather to reap the promoter's profit, and to bring additional companies within the sphere of irresponsible investment bankers. By means of holding companies, a little went a long way.

When the situation got completely out of hand, the federal government stepped in with the enactment of the Holding Company Act of 1935 which . . . so far . . . has applied only to gas and electric companies. Telephone companies . . . so far . . . have not been subjected to the extent of government regulation and control that has been applied to these other utilities.

(Continued on page 58)

Recent Quotations of Telephone Stocks

	6/1/62 BID	6/1/62 ASKED	4/30/62 BID	4/30/62 ASKED	Current Indicated Dividend Rate
Anglo-Canadian Tel. Co.	48	50½	58	60	$1.20
British Columbia Tel. Co.	44½	47	50¼	52	2 20
California Interstate Tel. Co.	21	22½	24¼	25¼	.80
California Pacific Utilities Co.	18½	20	26½	28	.90
California Water & Tel. Co.	18	20	21	22½	.72
Carolina Tel. & Tel. Co.	50	53	53	55	1.60
Central Tel. Co.	25½	28	33½	35	.88+Stk.
Chenango & Unadilla Tel. Corp.	28	31	31	33	1.35
Cincinnati & Subn. Bell Tel. Co.	99	102	107	110	4.50
Citizens Utility Co. "A"	22	24	26½	28	Stock Div.
Citizens Utility Co. "B"	20	23	25½	27	.68
Commonwealth Tel. Co.	25	27½	29½	31½	1.00
Florida Tel. Corp. Class A	15	17	19¼	20¼	.52
General Tel. Corp. Common	22	Last Sale	23¾	Last Sale	.76
Hawaiian Tel. Co.	17¼	18¾	20½	21½	.58
Independent Tel. Corp.	8		9⅛	Last Sale	—
Indiana Tel. Corp.	41	44	41½	44	1.60
Inter-County Tel. & Tel. Co.	33	36	39	41	.80+Stk.
Inter-Mountain Tel. Co.	18	20	20½	21½	.80
Jamestown Tel. Corp.	85	Bid	95	Bid	6.00
Lincoln Tel. & Tel. Co.	81	Bid	81	Bid	3.00
Lorain Tel. Corp.	39	Bid	42	Bid	1.40
Middle States Tel. Co. of Illinois	30	33	35½	37½	1.00
North Carolina Tel. Co.	1¼	1¾	1⅝	2⅛	—
Northern Ohio Tel. Co.	47	51	56	58	1.60+Stk.
Peoples Tel. Co.	27	Bid	28	Bid	.88
Pioneer Tel.	35	B'd	36	Bid	1.00+Stk.
Rochester Tel. Co.	29⅛		32⅞	Last Sale	1.10
Southeastern Tel. Co.	22	26	27½	29	1.00+Stk.
Southern New England Tel. Co.	46½	48	50½	52	2.20
Southwestern States Tel. Co.	24	28	31	32½	1.28
Tel. Service Co. of Ohio, Class A	23	26	27	29	.36+Stk.
Telephones Inc.	10½	12	14½	15¾	—
Tidewater Tel. Co.	28	Bid	28	Bid	1.40
United Utilities, Inc.	24	26	30¾	31¾	.96
Western Carolina Tel. Co.	11	13	11½	13	.40
*West Coast Tel. Co.	20	22	41¼	43	.72
Western Light & Tel. Co., Inc.	24	27	31	32½	1.20
Western Utility Corp.	10¾	11¾	12¾	14	.40
Winter Park Tel. Co.	30	Bid	30	Bid	.76

*After 2 for 1 split

TROUBLE CLEARING

THE TROUBLE WAS NOT FOUND

By L. N. Martin

ALL SERVICE businesses have their trouble problems. Sometimes a telephone man can get a clearer idea of his own problems by considering the problems of other services. This is especially true when the situation is reversed and the telephone man is the customer.

A few weeks ago we discovered that the front floor mat of our car was wet with anti-freeze solution. A brief inspection showed it was dripping from the heater. We drove to our favorite garage. The mechanic said, "The core of your heater is leaking. I will remove the heater so you can be on your way and I will call you when it is ready to be reinstalled." The heater was large and complicated. There were many pipes, tubes, and wires to be disconnected and several parts of the car had to be removed before the heater could be freed. We were tied up about two hours.

A few days later the garage man called. After we drove to the garage, he said, "Your core is OK. It does not leak. However, there are two short rubber tubes which connect the heater thermostat with the rest of the heater. The rubber is good but one hose clamp was loose. I think it was leaking there."

"Did you actually see it leaking?," we asked.

"No, but there was some discoloration. I feel quite sure that was your trouble."

This report sounded familiar to an old telephone man. How often have we heard a telephone repair man say: "I could not find any trouble but the ————did not look very good and I replaced it."

Test It Again

The garage man sensed our skepticism and said he would test it again. He put the heater under 15 pounds air pressure and immersed it in a tank of water. Not a single bubble arose. We had to accept the evidence and he reinstalled the heater. (Another two hours.)

PART 86. The preceding article in this series appeared in the Apr. 28 issue.

The next morning there was no leak. That day we made a few short drives around town—no leaks. The third day we drove 30 miles to another town. When we stepped out of the car we noticed that the floor mat was wet with anti-freeze! In telephone language we had "a case of repeated trouble".

Next day we returned to the garage. *It was not leaking.* We said: "It certainly leaked yesterday. The engine was hot then. It is cold now. Perhaps temperature has something to do with it. Let's warm up the motor." He ran the motor for about half an hour. *The heater began to drip.* The trouble was a defective thermostat which leaked only when the thermostat was in its operating position. We were reminded of many cases of telephone trouble which come and go with a change in temperature, a change in humidity, or a change in usage, etc.

Telephone Business

Now let's return to the telephone business. Those companies which classify their troubles usually first divide them into two big piles: "Found Trouble" and "Not Found Trouble". Each pile is then subdivided by codes. We do not have any recent records which show the comparative sizes of the two piles, but in looking over some old records of 11 exchanges we find that for one year of the combined group the "Not Found Trouble" was 39.5 per cent of the total subscriber reports. At some of the individual exchanges the "Not Found Trouble" went as high as 52 per cent of the reports in some months. The reader may find it interesting to look up this data at his own exchange or exchanges during the past 12 months.

In addition to the cases that were definitely classed as "Not Found" there were undoubtedly many other cases that were classified as found because the repairman had reported he had repaired or replaced something that *might have been* the cause of the trouble. In many of these cases the trouble came back and sometimes it came back again and again.

This is serious. A case of trouble that is not found is just as important to the subscriber as one that is found, and often causes more annoyance. A case that is definitely found and properly repaired will rarely return. The case is closed and the subscriber is satisfied. A case that is not found, even though something is repaired that could have caused the trouble, more often than not comes back as "Repeated Trouble". What can be done about it?

Several Classes

Trouble that is not found may be divided into several classes. In one class we would put cases in which the trouble was actually verified by the testman. The line tested short, grounded, or open, or while talking to the subscriber the testman heard noise or cutout or he noticed poor transmission. Here we start with a known fact. The telephone is (or was) in trouble. This should help the repairman as he can start on the case with the assurance that there is real trouble for him to find. Yet many of these cases

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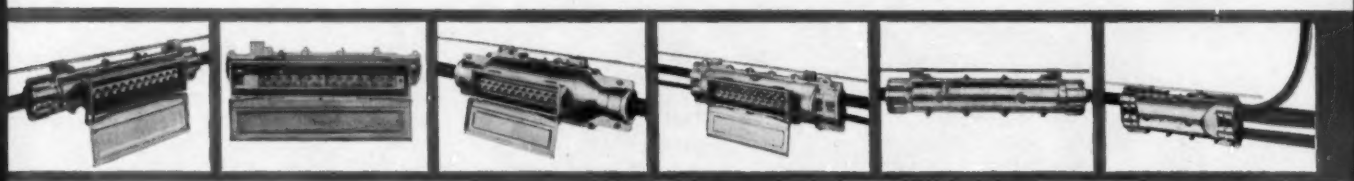

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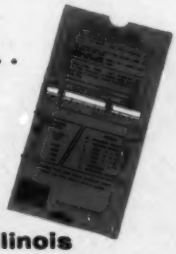

Reliable ELECTRIC COMPANY Franklin Park, Illinois

A Symbol of Integrity Since 1903

"come clear" before the repairman arrives on the job. What could have caused the trouble? Will it return?

There are many reasons why trouble, even opens, can come clear. Temporary opens may be caused by telephone men who are working in terminals, cross boxes, or in the central office. Also cable splicers may have a line open for a few minutes. It is worth while to take the time to find out what each man was doing at the time the line tested open. If a man was working in the same count as the line in question at about the time the line was open, it is reasonable to assume that he caused the trouble. If he actually had that line open we can be sure beyond a reasonable doubt that he caused the trouble and the report can be closed with confidence that the case will not return.

The object in this case is not to blame the workman. In fact, in exchange work, it is probably impracticable to notify the subscriber when we open his line for a few minutes. (Toll lines and Special Service lines should receive special treatment).

Inspect for Repairs

Non-telephone workmen may accidentally open a drop wire or an inside wire. In many cases they attempt to repair the damage themselves without reporting it. In the case of an open which clears itself the drop wire and inside wire should be inspected for such repairs. Otherwise such unskilled repairs may cause repeated trouble.

When open wire is used for rural distribution, a farmer often will patch up any broken wire that he sees to restore service to himself or a neighbor. He often uses a piece of rusty bailing wire for this purpose. If a farm line tests open and then comes clear, we suggest that the line be inspected as soon as possible to locate any such repair jobs.

The foregoing will definitely dispose of many of these cases but there are some cases that are not so simple or obvious. A wire under a binding post that is not turned down tight, or if the wire is corroded, or a poorly soldered connection may cause an open that "comes and goes". A slight jar or a change in temperature may cause the change from open to closed or closed to open. Then there is the poor connection that is closed by sparks from the ringing current but sooner or later goes open again. Some poor connections will cause a scraping noise which clears itself for a time. We have seen cases where shouting into the transmitter would clear the line for a time.

Found in Protectors

Grounds that come clear are often found in protectors. The carbons have been "smoked" by lightning and the line is grounded. A slight jar may dislodge the particles of carbon and the line comes clear. Such a case is very likely to return.

Shorts and crosses on open wire are caused by wind and whipping of small tree branches. When the wind ceases the tension may pull out such crosses. We suggest that the lead be inspected for slack and tree interference.

There are so many possible reasons for opens, shorts, crosses, and grounds that come clear that we can hardly attempt to list all of them. The point is to search out the reason for each case and definitely clear the trouble.

Another class of trouble reports that often find their way into the "Not Found" pile are cases where the trouble is not verified by test. If the trouble reported does not exist when the repairman goes on the job and he cannot reproduce the trouble or find the cause by inspection, all he has to work on is the subscriber's story. *The repairman must never appear to doubt the story told by the subscriber.* It may require much skill and experience to draw out the story and translate it into telephone language. Some of the points to be determined are: How often does the trouble occur? What time of day? Kind of weather at the time? Does it happen when you call people or when they call you? Do you remember what numbers you were connected with when any of these cases occured? etc.

Complete Story

The outside repairman may not be familiar with central office trouble problems. If he can bring a complete story to the central office foreman or chief switchman, the latter may be able to solve the problem. In some obscure cases a supervisor who is familiar with inside and outside plant and also traffic problems should visit the subscriber. The more difficult and obscure the case, the more time and money the company can afford to spend on it. An open drop wire can be repaired or replaced by any lineman and the case is permanently cleared. The cases which are hard to find and which if not found lead to repeated trouble and a dissatisfied subscriber, justify spending more time and money and the use of the best brains available.

How should these cases be handled in the trouble routine? How should the case be classified? Use could be made of the legal expression: "Beyond a reasonable doubt". If, beyond any reasonable doubt, the condition found caused the trouble, it should be counted as "Found Trouble" and charged to the type of plant involved.

Let the trouble record on the subscriber line card "tell the truth, the whole truth, and nothing but the truth". There is no need to be stingy with the trouble space on the line cards. Most of the cards will show less than one case of trouble in two years. When a case like the ones we have described comes up, the company can well afford to be liberal with the space on the card. A sample entry could be: Report: "Can't get dial tone and phone sounds dead *at times*." Subscriber says it happened twice today and three times yesterday. No cause for the trouble could be found on inspection or test. Cable pair suspected because of a history of similar trouble in that count. Changed from pair 282 to 287. Coded FOK (found OK) *Return card to testman for further study.*

Trouble Not Returned

If the trouble has not returned by the end of the day and no probable cause for the trouble has been found, is it better to carry the case over or to close it to FOK? Much depends on the type of trouble routine in use and whether or not other departments are involved. If the case is carried over, a case of "Carried over trouble" is scored against the plant and the case may after all be closed to FOK. On the other hand, if the case is closed to FOK at the end of the day it may result in a case of "Repeated Trouble" tomorrow.

The plan that the writer likes to follow (when permitted by the routine) is to close the case at the end of the day, then start an extensive study of the case tomorrow morning.

We believe that the company should take the subscriber into its confidence. In no case should the subscriber be told: "Your telephone is OK now" when the repairman well knows that he has not found the trouble and it is very likely to come back. If told the truth, the subscriber will usually understand and appreciate the company's position and he may be very helpful. The following statement could be used: "We have made a thorough inspection of your telephone and line and have found no condition that would cause the trouble which you reported. *However, we do not doubt your report.* It may have been due to some-

(Continued on page 45)

MIND YOUR OWN BUSINESS

Here's a personal file of stimulating ideas; little known facts and problem solvers

By TED POLLOCK

ONE SECRET OF GETTING A BIG JOB DONE. In a now-classic experiment conducted by the Psychology Department of Columbia University, a group of volunteers had one-pound weights suspended from their index fingers. They were instructed to crook the finger—thus lifting the weight—for as long as they possibly could. Only when they were certain that they could no longer budge the weight were they to signal the psychologist in charge.

Some of the volunteers were able to lift the weight 100 times or more. But sooner or later, each one reached his own individual point of total exhaustion. His finger felt paralyzed; the weight seemed a ton.

None of the subjects could see any of the others and as each succumbed in turn, the psychologist hurried over to him and whispered something in his ear.

In every single case—*without exception*—the volunteer was able to lift the weight many more times after listening to what the psychologist had to say. Some were able to lift it more than 20 times past the point they were initially convinced represented complete exhaustion. Several subjects bettered their original performances by almost 30 per cent.

What magic phrase did the psychologist employ?

Simple.

What he whispered was this: "From this point on, I will give you a dollar for every time you lift the weight."

A dollar bill for just crooking the index finger! Suddenly, fingers came to life. The weights moved swiftly, firmly.

Why? Because nothing is better geared to extract that last ounce of effort out of a human being than a *reward.*

What does this mean to you?

Just this—if, as you check on your progress through a big job, you reward yourself as each sub-goal is attained, you will lay the psychological groundwork for additional achievement. It is precisely when we think that our last effort has taken everything out of us—imagination, perseverance, energy—that we desperately need a "shot in the arm."

Rewards—and the prospect of them—provide just this. They excite us. They give us immediate pleasure. They provide tangible proof that we're getting somewhere. And they help make a game out of what is essentially a serious business.

So an integral part of attacking any big job is to set—in advance—"reward points," those places along the road to completion of the task where you will consciously pause and treat yourself to something because you've earned it.

Since only you know what counts *for you,* set your own reward goals. pay off without fail—and get that big job done!

(What applies to you, of course, applies equally to those who may work under you. Try rewarding them from time to time and watch their performances improve.)

HOW TO FIGURE INTEREST RATES. If you're thinking of buying some big-ticket item on the installment plan, you ought to figure out the interest you will be paying as well as the actual dollar costs. Here's a formula that will tell you the *true* interest rate on any installment loan. Use it to shop around and compare costs.

$$a = \frac{2nf}{b\ (p + 1)}$$

a = the annual interest rate.

n = the number of payment periods per year (12 monthly or 52 weekly).

f = the finance cost in dollars.

b = the amount borrowed.

p = the number of installment payments to be made.

In the case of a TV set on which you will pay $22 a month for 12 months, for example, n would be 12, f would be $24, b would be $240 and p would be 12. Put these figures through the formula and you will find that a, or the true interest rate, is a shade over 18 per cent!

SOME ABC'S OF CONTRACT LAW. Whether you realize it or not, you sign dozens, if not hundreds, of contracts in the course of your life. And, like most people, you probably do it without knowing exactly what a contract is or what it involves. Some funda-

mentals:

What is a contract? An agreement between two or more parties, in which one promises to do or refrain from doing something, in consideration for which the other party (or parties) promises to do or refrain from doing something. A contract must be mutual —there must be something yielded on each side.

What are some examples of contracts? Insurance policies, promissory notes, most purchases, repair work, deeds, leases, subscriptions, membership in organizations, trust agreements, to name a few.

Must a contract be in writing? Not necessarily. Some contracts are implied—for example, when one person lends money to another, the return of the money is implied, though not specifically promised.

Are there any contracts that must be in writing? Yes, particularly those affecting land or involving a substantial amount of money.

Must a contract be in a technical form to be legal? No. An exchange of letters or telegrams is just as binding as a single document, if it contains mutual promises and a definite agreement. A contract written on the wall of a barn has been upheld in court!

Can a contract be canceled? Only by mutual consent of the parties involved. Many people erroneously believe that a contract for the purchase of goods, for the employment of individuals or for the renting of houses can be canceled at will. But this is not so, unless the contract itself provides for such cancellation.

What precautions should be taken before entering into a contract? Be sure that it is entirely clear and understandable. A contract should contain *all* the details which are intended to govern the transaction. Nothing should be left to inference or to subsequent agreement. If there is any doubt about any of the terms or about the advisability of binding oneself in certain respects, consult an attorney or a businessman experienced along the lines of the contract.

ARE YOU PREJUDICED? Wilson never had a good idea in his life; why should you listen to him now? Your secretary can't possibly contribute anything of value to the speech you're scheduled to give; she's not a college graduate.

Nothing you can name prevents more people from thinking clearly and into the heart of a problem than *prejudice*, the tendency to approve or disapprove of certain people, things or ideas for irrational reasons.

Are *you* guilty of prejudice in one form or another? Here is a little word-association game that will tell you something about your "prejudice quotient." Study each of the following words. Next to each, jot down anything they suggest to you. Write as few—or as many—associations as occur to you about each word. There is only one requirement—that you be candid with yourself.

College Professor					
Politican					
The South					
Unions					
Africans					
Laborer					

If you are like most of us, you probably had little difficulty in filling the blank spaces.

Ideally, though, *you shouldn't have written down a single word!* If you are truly unprejudiced, no idea, concept, word or label ought—by itself—to trigger a response in you.

"Okay," you say. "I'm prejudiced. But how can I prevent my biases from interfering with my judgment?"

You can do two things:

1) Recognize your prejudices.

2) Consciously reject them whenever they stand between you and the assessment of a problem, idea or individual.

Watch These "Tremendous Trifles". Each of us is a collection of many habits, attitudes and characteristics. But all successful men have certain traits in common. Here are five that merit cultivation—or refinement—if they are not already part of your "personality profile."

Be punctual. The first law of good public relations is, "Respect the other fellow's time." Modern business has no place for the man who fails to keep appointments, is slow in completing his work, keeps others waiting.

Keep your word. Too often, we make promises that we can't possibly make good. "Be slow to give your word; be quick to keep it."

Be brief. Longwindedness makes anyone unwelcome. The long, rambling letter is shoved aside to be "read later" and is soon lost in the shuffle. The "visitor" who perches on the desk of a busy man and tells tedious stories soon earns inclusion on the blacklist.

Anticipate chores. Some people muddle their way through each day, week, month, attending to one emergency after another; others always seem to be in control of things. Their secret? They look ahead, anticipate what has to be done, create—and stick to a schedule.

Do it now. One of the oldest pieces of advice in the world—and one of the best. Dispose of each little chore as it comes along and it will never have a chance to turn into a big one.

WANT TO BE MORE EFFICIENT? ORGANIZE YOUR EFFORTS!

Confronted by a new—or big—job, most of us dissipate our energies by trying to do a little of everything simultaneously. The net result is usually—confusion.

The secret of real accomplishment, however, is to know precisely what you want and what steps you are going to take to get it. In short, your efforts must be organized.

How? Like this:

Define your problem. **Exactly what has to be done?**

Assemble all the factors. **These include people, dates, work already done, correspondence, tentative plans.**

Break up the larger factors into their smaller parts. **A king-size ingredient that defies analysis can be whittled down to pint-size, manageable elements.**

Grade the factors according to importance. **Getting a particular letter out is insignificant compared to finding ways and means of making your office run more smoothly. First things first—always.**

Adopt a schedule. **By assigning yourself specific tasks to be accomplished in a predetermined period of time, you keep yourself on your toes.**

Follow your plan. **If it proves unsuitable, you can change it. But as long as it remains your plan, stick with it.**

privacy

amid babble and hubbub

There's nothing more disconcerting to the paystation patron than the din that drowns out reception. Or the roaring surf of crowd sounds that force the phone caller to shout to make himself heard.

No wonder phone users pass up open pay-stations in favor of fully enclosed booths. Why, indeed, they choose Sherron steel phone booths, wherever they are available.

For one thing, they know they'll have complete privacy. What's more, they know the acoustic efficiency of Sherron booths is such as to shut out or minimize outside noises. And, of course, they know the Sherron booths to be commodious . . . and comfortable.

You can't beat this combination in stimulating paystation revenue.

Stainless Steel

SEE OUR CATALOG IN SWEET'S

INDEPENDENT

Sherron ACOUSTIC SEE-THRU

There's a Sherron booth for every location and budget in "gold," stainless steel or cold rolled steel.

SHERRON METALLIC CORP., 1201 FLUSHING AVE., BROOKLYN 37, N.Y.

New Developments in Telephony

By RAY BLAIN

THE CONTINUING demand on the telephone industry for expanded and improved communications services has greatly accelerated research and the development of new techniques and equipment necessary to meet the unprecedented requirements of the industry. Telephone equipment manufacturers and other producers have been most responsible to the needs of telephone operating companies by designing and fabricating equipment, materials, and tools required to provide service necessary to meet the demands of this modern age.

A recent survey indicated that operating companies maintain a high degree of interest in information on new products and techniques. We are, therefore, again presenting our annual review of the latest developments and we hope it will prove beneficial to all telephone companies not only in their expansion and modernization programs, but in the maintenance and operation of their systems as well.

• • • •

THE ELECTROFILE (Fig. 1). The Acme Visible Electrofile is just what the name implies. This filing system incorporates the speed of electricity in placing important information at one's fingertips. The equipment codes, punched on a keyboard, verify, store and select from the single set of cards required by this system.

The speed and accuracy of the system comes from the special patented metal teeth which form the bottom edge of each card. With the use of the Electrofile keyboard, these teeth are keyed to practically any desired kind of card selection. Depressing any desired key causes any single card or group of cards bearing this specific code to pop up instantly from the file. These special metal edges may be attached to the cards now in use. The fingertip control actuates the electromagnetic machine by simply pushing the required key.

Fig. 1 The Electrofile.

Because the selector can immediately spot the card desired, regardless of its location in the tray, refiling by sequence is not necessary. Cards can be placed in the tray at random, thereby saving the time and effort normally required to locate and file in their proper sequence. The cards can also be identified by name, by number, by date, by products, by area, or any other arrangement that may be required. Moreover, when a group of cards in a given category is required, the entire lot is located as quickly as a single card.

The Electrofile cards are of the regulation type, but have strips of thin metal along the bottom edge. They can be processed through typewriters, posting machines, etc., just as quickly and easily as any ordinary card. There is no doubt that this system will prove to be extremely useful and time-saving in the average telephone office.

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AUTOMATIC TOLL TICKETING SYSTEM (Fig. 2). Automatic Electric Co. has improved its Strowger Auto-

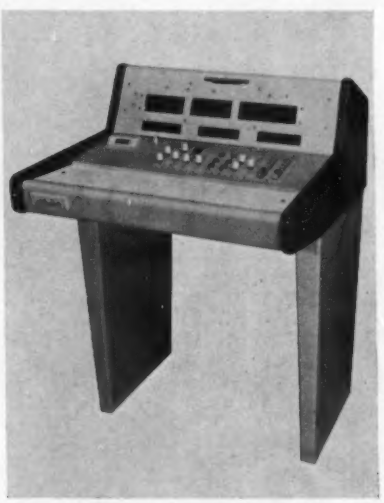

Fig. 2. PPCS operator's position for SATT system.

matic Toll Ticketing System (SATT) by adding features necessary to handle person-to-person, collect, and special instruction calls, instead of being limited to station-to-station calls. This new feature is designated PPSC. The actual routing of all these special calls and re-

cording of basic information are automatic. The timing is also automatic. The operator's only duty is to insure that the calling party receives the service desired.

In order to explain this new feature, we will follow a PPSC call from its beginning to completion. First, the customer dials an access code which indicates a PPSC call. Next, he dials the called number. After dialing is completed, the operator is automatically signaled and enters the line. The caller gives the name of the party being called (if a person-to-person call), or his name (if a collect call), or his credit card number, or the number to which he wants the call to be billed (if a special-instruction call). The PPSC operator indicates by pressing a button what type of call it is. If Automatic Number Identification (ANI) is present, all billing information is recorded automatically. Otherwise, the CKO operator must obtain the calling number and key it into the ticketer.

Meanwhile, SATT has sent the call forward. When the desired party answers on a (person-to-person call), an automatic timing mechanism is set into operation by the operator which runs until the call is completed.

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DYNALOGIC ELECTRONIC PBX (Fig. 3). Stromberg-Carlson's Electronic PBX—marketed under the trade

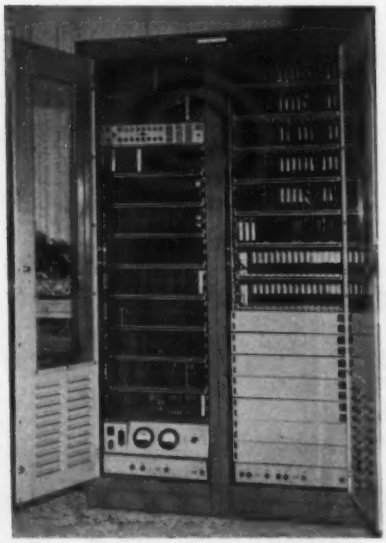


Fig. 3 Dynalogic electronic PBX.

name Dynalogic—has become a production item. The system is similar to the one that has been in service for several months at Southern Pines, N. C.

Among features not included in electro-mechanical systems are: space requirements reduced by a 5-to-1 ratio; microsecond speed in switching; full availability of circuits; greater flexibility.

The dynalogic PBX is compatible with electro-mechanical systems. The same telephone instruments used in any modern system can be associated with this electronic PBX.

•

OFFICE CONVEYOR FOR TELEPHONE SHOPPING (Fig. 4). Telephone shopping and service departments in modern retail stores and business establishments are presently do-

Fig. 4 Office conveyor for telephone shopping.

ing a big business throughout the country. This new service is made possible by the use of the automatic call distributor now being provided by operating telephone companies.

With this equipment, incoming calls by-pass the PBX operator and are directed to an available and specially trained sales woman who handles the transaction. To efficiently handle this increasing volume of telephone orders from customers, many business firms are adopting the new versatile office conveyor systems now being marketed by Mercury Industries, Inc.

These conveyors are used to transmit the telephone order direct to the department or person who will complete it and make the delivery to the customer. This action avoids delays and mistakes and materially increases the value of the telephone sales system. This concept is also ideal for operating telephone companies, since it gives sales merchandising departments a new approach to a modern telephone arrangement.

The channel type belt conveyor system proves ideal for use with the telephone merchandising system. In this type system, paper is held in an upright position between two stationary vertical guides, and conveyed by a motor driven belt running beneath them. The guides may be straight sided and constructed of hard wood, V-shaped and made of sheet metal, or of molded aluminum alloy.

The space between the guides and their height varies according to the width and height of the paper being conveyed. Short narrow-gauge guides are used if the traffic consists of small tickets or slips. The guides are higher for larger pieces of paper so as to keep them from bending over, and are of a wider gauge if bulky envelopes or folders are to be conveyed.

The system may consist of one or as many as 30 channels. There are no mechanical limitations to the number of channels, but there are practical limitations. Banks of belts may be stacked one above the other. Or, running side by side, they can be made to move in either direction. Multi-channel belts are used where there is a concentration of one or two-way traffic between various individuals or individual work stations in a given area. By using separate channels for various individuals, or individual work stations material can be carried to and from them without the need of sorting or other handling.

•

TONE GENERATOR (Fig. 5). Orbit Industries, Inc. has produced a new TG-1 tone generator to replace the old

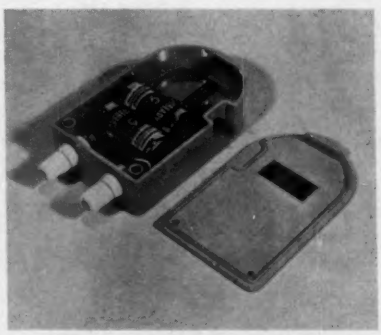
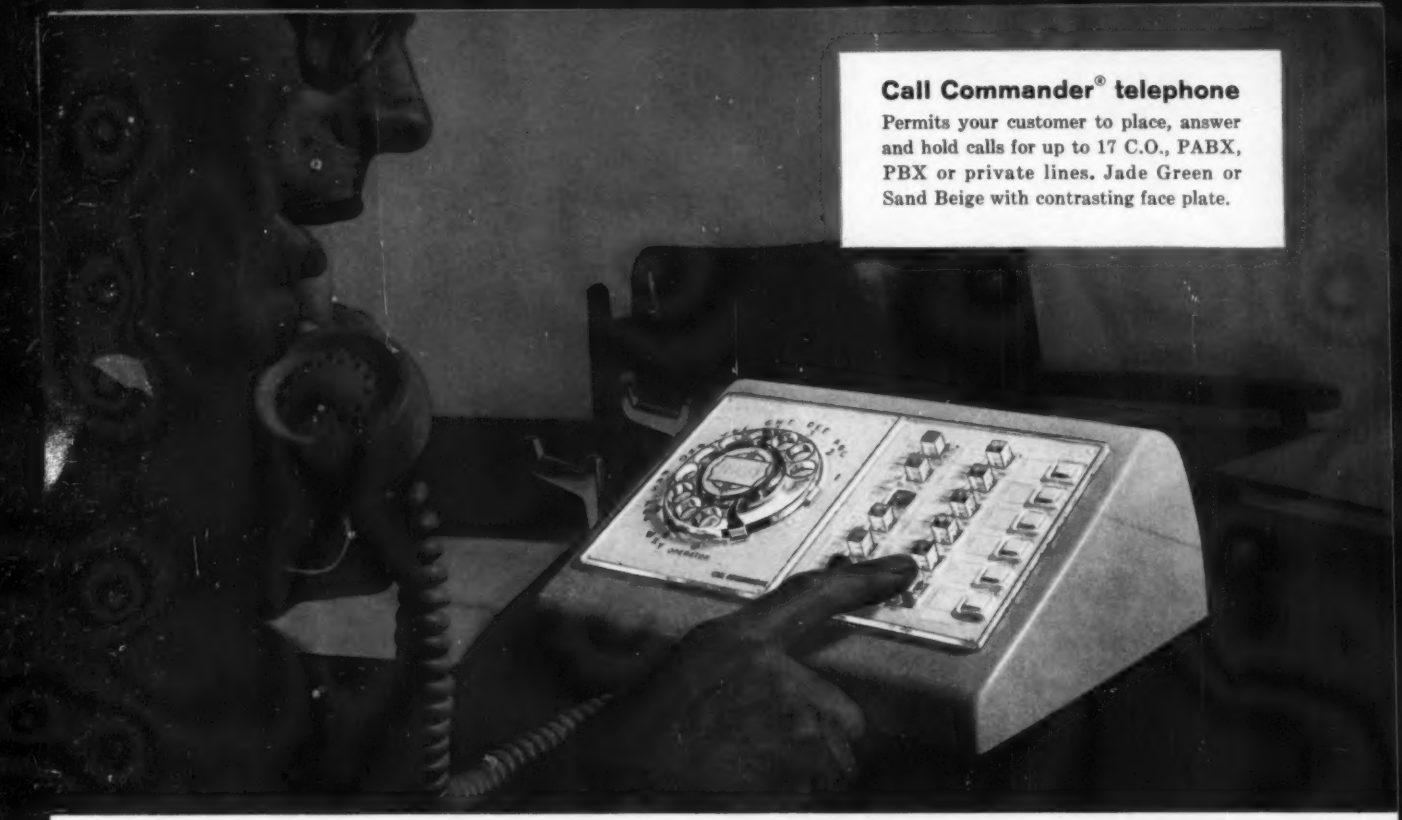


Fig. 5 Tone generator TG-1.

81A buzzer. The new unit is a compact, self-contained audio signal generator designed to energize cable used in connection with the new concept of pre-wiring of customer's premises.

This generator produces a standardized signal having characteristics which insure accurate detection through any

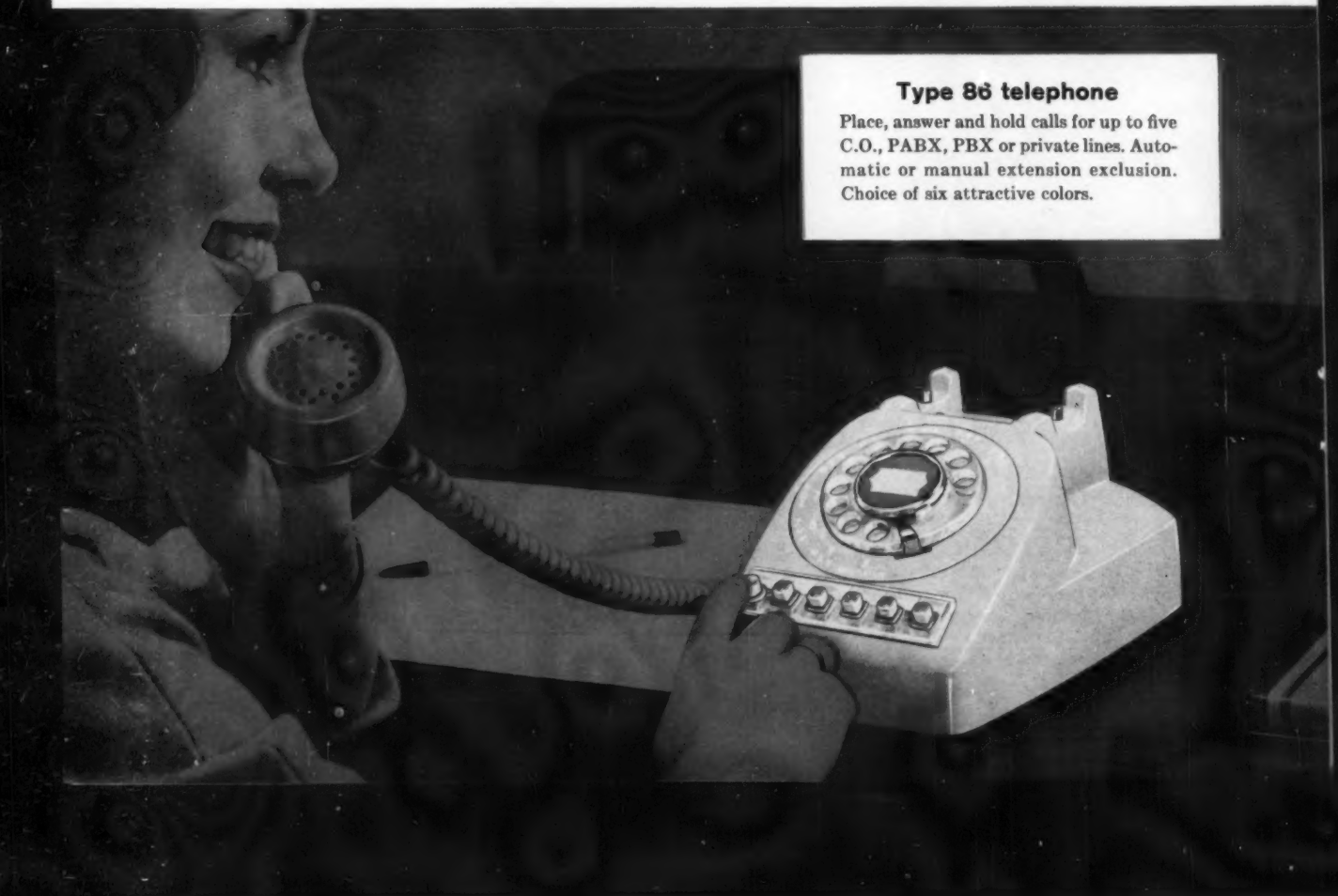
(Continued on page 58)



Call Commander® telephone

Permits your customer to place, answer and hold calls for up to 17 C.O., PABX, PBX or private lines. Jade Green or Sand Beige with contrasting face plate.

10-A1 KEY SYSTEM provides custom



Type 86 telephone

Place, answer and hold calls for up to five C.O., PABX, PBX or private lines. Automatic or manual extension exclusion. Choice of six attractive colors.

With our expanded key system, you can provide business customers with custom communications, inside or outside! Just take a look at the many features that this system offers:

Smart, modern telephones. You can offer your customer the Type 86 phone or the new Call Commander phone. Both have lighted push-buttons which act as line signals.

Up to 17 lines! Your subscriber can place, answer and hold calls for up to 17 C.O., PABX, PBX or private lines at any station.

Tie lines for linking a station on one key system with another station on a distant system.

Selective dialing for up to 36 intercom stations. Single or two-link talking arrangement.

Privacy on intercom links.

Conference calls. Up to six other inside stations may be called simultaneously or consecutively. You can also add another inside station to an outside call!

Camp-on feature. Reserves busy line for caller and automatically connects when line is free.

communications for your business subscribers!

Do you use this expanded key system as a revenue-builder?

All over the country, telephone men are discovering that they can earn extra revenue by leasing the 10-A1 to business subscribers. Make a check in your community. Find out how many prospects you have for this business communications system. Then—go out and sell the systems!

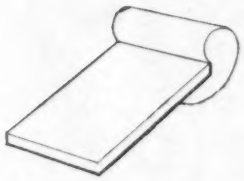
If you have any questions about the 10-A1, contact your AE representative. He'll be glad to help you. He can also furnish you with sales aids to help you promote the 10-A1 to your customers. To reach him, write Automatic Electric Sales Corporation, Northlake, Illinois.

AUTOMATIC ELECTRIC

Subsidiary of

GENERAL TELEPHONE & ELECTRONICS

The Plant Man's NOTEBOOK



By RAY BLAIN, Technical Editorial Director

THIS YEAR'S report of highway accidents indicates that 37,600 persons died and 3,057,000 were injured. This represents a one per cent drop over the figures of a year ago. An important angle is that passenger cars were involved in slightly more personal injury accidents in 1961 than in 1960 while commercial vehicles and taxis were improving their records. The report indicates that passenger cars make up about 80 per cent of all registered vehicles and are annually involved in more than 80 per cent of all personal injury accidents.

This might appear to be about normal, with commercial vehicles accounting for about 20 per cent of these accidents. However, what really should make us think is that the average commercial vehicle travels up to four times as many miles per year as the average passenger car, yet accident frequency is less. If exposure were the only factor, commercial vehicles would be involved in as many accidents as passenger cars. That they are not is a tribute to the training, skill and attitude of the drivers of commercial vehicles. Perhaps we should take a lesson from the pro's.

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It is reported that there are presently more than 15,000 outdoor telephone booths in use in the United States. This is double the number in service in 1959.

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We are pleased to note that the students and faculty members at Eastern Montana College, at Billings, are now enjoying the latest and most complete telephone service available. Complete dialing between all telephones on the campus and in the Billings exchange is provided without the aid of an operator. The system is the first to be installed for college use in Montana or in the eight-state area served by the Mountain States Telephone Co.

With this new 24-hour service, students can lift the telephone receiver and dial their local calls and station-to-station long distance calls directly from their rooms. Inward service and operator's assistance, as required, are provided at a three-position switchboard. It is good to note that colleges are finally realizing that all calls on their PBX systems need not be manually handled by operators.

•

There is a new look in telephone trucks of various operating companies these days. Since the beginning of the telephone industry its workers have walked, ridden bicycles, driven horse-drawn wagons, chugged along in horseless carriages, and driven trucks in the performance of their jobs. With each new development in transportation there has been a trend toward making the installer's work a bit easier.

Until the recent appearance of the van-type truck, the symbol of the telephone installer was the standard pick-up truck with the utility body. This type of truck has served the industry well for many years and is continuing to do a good job.

The new van-type truck is rapidly gaining favor, however, throughout the industry. It appears to be especially desirable for the use of PBX installers as they are virtually a storeroom on wheels. Storage bins arranged inside the vehicle provide ready access to hardware and tools as well as the more often used items of telephone apparatus. A supply of cable of various sizes may be carried in larger bins. A most important feature of this arrangement is that material and equipment is protected from the weather at all times. There is also adequate space to work inside the truck in bad weather. Some trucks have a small work bench and vice to make the installer's job a bit easier.

Another advantage of this new type of truck is the easy loading feature. The bed, or floor of the truck, is low and large so heavy items of equipment may be loaded easily. Along with the easy loading feature comes accessibility. This type of truck has two swing-out doors on the right side, each opening to a width of more than four feet. This arrangement permits loading and unloading from the sidewalk side. The loading doors are, of course, in addition to the cab doors.

Safety also is an important consideration in the design of this new type truck. It provides good visibility. In fact, the driver has a 360 degree view of what is happening in traffic on all sides. It also is easy to park and economical to operate.

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Many of the employes of General Telephone Co. of Ohio have enrolled in correspondence schools as a part of their self-development plans. Numerous technical, professional and business courses are available, and can generally be tailored to provide the exact training desired.

The company has cooperative training arrangements with several correspondence schools in order to assist employes in selecting appropriate courses. These arrangements permit employes to take advantage of a 10 per cent discount in the cost of any course they may select.

The company also has information concerning correspondence courses offered by various colleges and universities throughout the country. These courses can be used for college credit and are relatively economical.

•

By using Automatic Call Distributors, Braniff, Delta, and Eastern Airlines are making quick reservation service with the speed of their jet fleets.

In addition to the complicated job of converting three Houston airline reservation centers to Automatic Call Distributors within a six-month period, Eastern Airlines posed a special problem for the Southwestern Bell Telephone Co.'s task force. Whereas Delta and Braniff reservation centers are far less complicated than their main facilities in Atlanta and Dallas, respectively, Eastern's Houston office is one of the line's main reservation centers in the United States. It serves the entire state of Texas, plus part of Louisiana, utilizing foreign exchange

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service woven into a Telepak communications package.

Customers in New Orleans, Orange, Beaumont, Galveston, San Antonio, Fort Worth, Dallas, or Houston simply pick up the phone, dial a local number, and the call goes direct to Houston where all reservations are made for customers in those cities.

Eastern forecasts the number of calls expected to its reservation center for a given day and uses it as a basis for the work schedule. But when bad weather envelops the area covered by the Houston office, an estimated 3,000-call day may turn into a 7,000-call day. That's when the Automatic Call Distributor is worth its weight in gold. It just keeps slipping the calls into open lines and makes bad weather much less of a problem than before this equipment was provided.

•

Many will remember back in the thirties when unshielded buried wire first made its appearance in this country. We all thought that this was the ideal type of plant, and that it did not require any protection.

It was first thought that, as the entire plant was underground, it would be immune to lightning damage. Later, to our sorrow, we learned that many lines were severely damaged by lightning, and that a ground wire must be buried with the line wire, or equipped with a metallic shield. It was later determined that lightning came into the ground from trees and jumped to the cable and ground from their roots.

A recent item in *On the Line*, published by the Australian Post Office, describes how lightning struck and shattered a large tree in that country. The lightning then travelled along one of its roots for 50 feet and jumped to a 100-pair buried cable. The explosive force of the lightning opened a trench two feet wide and two feet deep in the ground along the length of the tree root, plus a large hole at the point of contact with the cable. The lead cable sheath was melted, and the discharge travelled along the cable in both directions, flashing from sheath to conductors, in at least thirty places, over a distance of 3½ miles.

"Cross Talk"

Education is defined as what you have left over when you subtract what you've forgotten from what you've learned.

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You may not know when you are well off, but the Internal Revenue Department does.

Plant Man's QUIZ

By RAY BLAIN, Technical Editorial Director

Q. Will it be safe to assume that powder powered tools can be used with safety in driving studs on telephone construction jobs?

A. It is our opinion that if these tools are used properly, and if workmen will observe a few simple precautions, they are entirely safe. One such tool is designed so the stud is not driven by direct velocity of the powder charge, but is pushed by a piston throughout its traveled distance. This action provides controlled travel at slow movements which avoid ricocheting of the stud from the surface. Neither can the driver be fired accidentally. Several safeties must be released prior to firing.

•

Q. Is there an instrument available that may be used in solving problems in cable pressurization?

A. There is available a slide rule type instrument called "The Cable Pressurization Computer" for quickly and easily performing the mathematical computations required for cable pressure analysis procedures which are based on the computation of flow and pressure drop.

This instrument is composed of three parts: the body, the slide, and the indicator. The body of the computer has two sections, a top section and a bottom. The two sections of the body are separated by the slide which moves between them. The indicator is composed of a clear plastic rectangle with a fine line etched on it. Complete instructions are furnished with each instrument indicating how it may be used to solve various problems on pressurization.

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Q. Will it be possible to use a line throwing gun in the construction of a telephone line over rough terrain?

A. There is a gun of this type available that is designed to carry a nylon line over distances up to 550 feet. The smooth bore hammer gun used is .45-70 caliber. A brass projective 14" in length carries the line. A rewinding machine is also available for reeling in the line so it can be reused without fouling.

•

Q. What is the Variable Count Cable Terminal and can it be used on all types of cable?

A. The Variable Count Splice Case Cable Terminal can be installed on paper or plastic-insulated cable with aluminum, lead, alpeth, or stalpeth sheath. It features a splice case terminal with multiple cable pair selections found in ready-access terminals and permits changing terminal counts without opening the splice case.

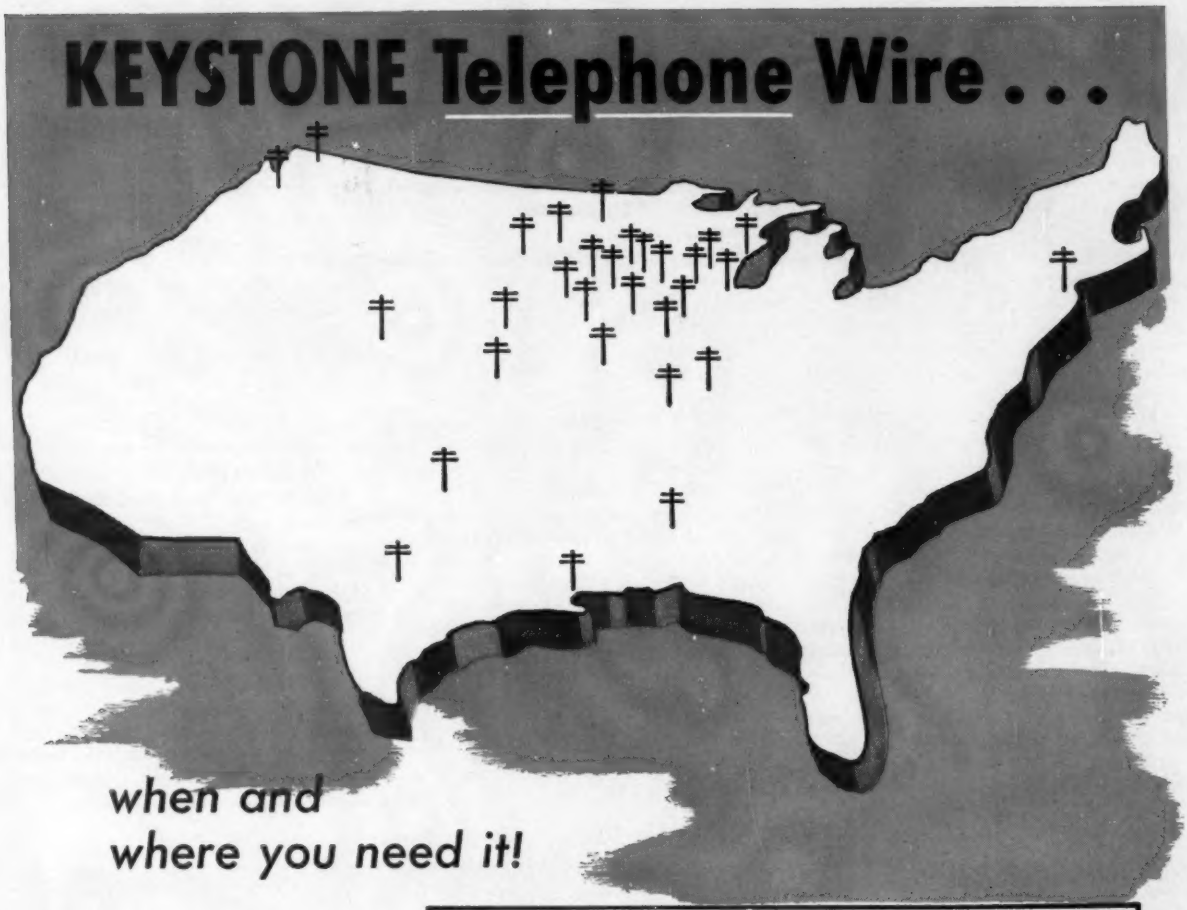
The terminal housing is equipped with a 26-pair bundle of plastic-insulated, color-coded conductors that are half-tapped to the distribution cable at each terminal location. As desired, the terminal housing will accommodate either one or two six-pair terminal blocks for one to 12 cable pairs. In each 26 pair bundle there is sufficient slack so any pair in the bundle can be terminated on the terminal binding post and tightened under an insulating crushing washer on the terminal binding posts. This feature eliminates the necessity of stripping the wire insulation. Between the terminal housing and the splice case, the wire bundle is hermetically sealed which provides an airtight and moistureproof splice closure.

•

Q. Is it possible to obtain a one-piece wire grip for use with parallel type drop wire?

A. This type of grip is available from several manufacturers. They claim there are no parts to assemble and it can be easily installed by linemen wearing gloves. The slim design of one type permits several to be used on one drive hook. Moreover, the drop wire may be removed from the grip regardless of the wire tension or the period of time they have been in place. It is also designed for reuse indefinitely.

KEYSTONE Telephone Wire . . .



when and where you need it!

From many convenient locations, quality Keystone Wire is available for the needs of the telephone industry. Keystone offers a full range of Class A line wire in 50M, 85M and 135M tensile strengths. All line wires meet the specifications of A.S.T.M. and A.T.&T. and are approved by R.E.A. Your Keystone Distributor also offers a full line of galvanized bond, tie and construction wire in a full range of gauges. For quality wire—and prompt delivery—contact your nearest Keystone Telephone Wire Distributor or write direct for information.

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Waterloo, Iowa

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St. Paul, Minnesota

Kingsport Electric Co., Inc.
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Line Material Industries
Milwaukee 1, Wisconsin

Marshall-Wells Canadian Companies, Ltd.
Winnipeg, Manitoba, Canada

Midwest Telephone Supply, Inc.
Appleton, Wisconsin

The Mine & Smelter Supply Co.
Salt Lake City, Utah

Nelson Electric Supply Co.
Dallas, Texas
Lubbock, Texas

Piedmont Electric Supply Corporation
Charlottesville, Virginia

Jack Pruzan Co.
Seattle, Washington

Southern Electrical Corp.
Chattanooga, Tennessee

Stromberg-Carlson
A Division of General Dynamics
Chicago, Illinois

Suttle Equipment Company
Chicago, Illinois
Lawrenceville, Illinois

Tele-Wire Supply Co., Inc.
Jamaica, New York

Tennessee Valley Electric Supply Co.
Little Rock, Arkansas
Memphis, Tennessee
Nashville, Tennessee

KEYSTONE WIRE FOR THE TELEPHONE INDUSTRY

. . . by the makers of famous Red Brand Fence

IN THE NATION'S CAPITAL

Continued from page 18

under controls of the courts and the attorney general "removes the anomalies and ambiguities of the present law."

Prof. Robert B. McKay of the Committee on the Bill of Rights took strong exception to wiretap legislation saying "interference with telephone communications is a direct assault on liberty which this free society should not permit."

McKay said his committee recommends an outright prohibition against wiretapping.

He called for an amendment to the Communications Act that would make it clear that any wiretapping activity be a crime and any evidence obtained through tapping should be inadmissible in any court.

On May 29, Assistant U. S. Attorney General Nicolas Katzenbach and Alan Barth, editorial writer for the Washington *Post*, engaged in a spirited talk on wiretapping in a discussion sponsored by the Washington Chapter of the Americans for Democratic Action.

Katzenbach charged that any position which holds wiretapping to be wrong is "unconscionable, immoral and unjustified." Barth opposed his position declaring the bill would cause an invasion of individual privacy.

Katzenbach pointed out that under existing federal law, anyone's telephone may be tapped. He said, "We are trying to curtail indiscriminate invasion of privacy and make it a federal offense to wiretap in cases other than directed by the Justice Department or the courts."

Barth maintained that any wiretapping violates the Fourth Amendment because it is a general search under a general warrant. It also breaches the Fifth Amendment, he said, because a person may be a witness against himself without being first informed.

Katzenbach countered that wiretapping is not an invasion of rights guaranteed by the Constitution because it does not involve a search of a person or his property.

Barth suggested that Congress pass a law prohibiting wiretapping by anyone. He added, "For the past 22 years, every Attorney General has asked Congress for the right to use wiretapping and Congress has refused."

Katzenbach was, of course, arguing the merits of Administration-backed proposals to limit wiretapping to official use in investigating certain suspected crimes while outlawing all private use. He said the interpretation of existing law is that wiretapping can be used under certain circumstances without hindrance by law enforcement officials. The proposed bill would narrow and restrict certain wiretapping that now has no limitation.

Conflicting History

"Perhaps a student of history, writing with the perspective of the year 2,000, will identify communism in retrospect as not the wave of the future, but the backwash of a reactionary past, swept away by the increasing incompatibility between its false and sterile dogmas and the natural instinct of human beings for a freer, more varied way of life." WILLIAM HENRY CHAMBERLIN **in May, 1962,** *The Freeman.*

Danish Debenture Issue To Yield 5.95 Per Cent

Copenhagen Telephone Co.'s 15 million dollar of five per cent sinking fund dollar debentures, due June 1, 1977, reached the market at 96.80, to yield 5.95 per cent. (TELEPHONY, May 12).

A sinking fund, beginning in 1968, is designed to retire the entire issue by maturity. The debentures otherwise are non-callable for 10 years. Principal and interest on the issue are payable in New York in U.S. currency.

Copenhagen Telephone Co., 50.65 per cent owned by the Danish government, is the sole supplier of telephone service on the Danish islands of Zealand, on which the city of Copenhagen is located.

Proceeds from the debenture sale will be used for construction and improvements, according to the company.

Davison Named Vice President Of Southwestern Bell

Marvin L. Davison, Southwestern Bell division manager at Dallas, has been appointed assistant vice president-personnel at St. Louis.

He succeeds William G. Hoffman who earlier was named general traffic manager for the company's Missouri-Illinois Area.

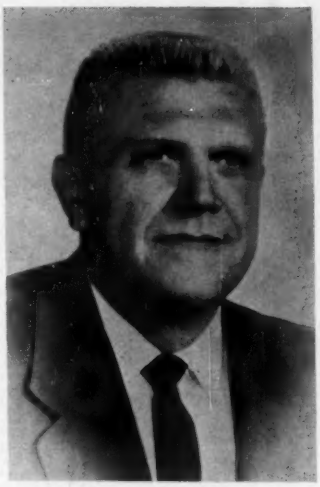
James B. Nichols, general sales and service manager in St. Louis, will replace Davison in Dallas.

Davison started with Southwestern Bell as a business representative at Dallas in 1946. He later was district manager at San Antonio and Dallas, and was promoted to division manager in 1957.

Nichols joined Southwestern Bell's commercial department at St. Louis in 1947 and later worked in a number of commercial supervisory jobs in the St. Louis metropolitan area. He was promoted to district manager at East St. Louis, Ill., in 1958 and was named general sales and service manager for the company's Missouri-Illinois Area the following year.

B. M. Pederson, Plant Manager C & D Batteries, Dies Suddenly

Ben M. Pederson, plant manager of the Attica plant, C & D Batteries, Div., The Electric Autolite Co., Conshohocken, Pa. died unexpectedly Saturday, May 12, 1962 at his home in Attica.



B. M. PEDERSON

A well known executive of the battery industry for years, Mr. Pederson had been plant manager for the Attica plant since its opening in 1955 and was an industrial engineering graduate of the University of Minnesota.

Death, at the age of 49, was attributed to a heart attack.

ACE

IN THE HOLE!

- Only North Electric NX-2 Crossbar provides for future speed with modern equipment.
- Only with NX-2 Crossbar can you accommodate multi-frequency pulsing and pushbutton dialing without major costly equipment replacement.

For details on how to deal yourself a winning hand, write, wire or call . . .

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POWER EQUIPMENT — *Custom Power Systems • Battery Chargers*

Courts and Commissions

N. D. Cooperatives Protest Tax Increase Proposal

A North Dakota Legislative Research Committee subcommittee has heard officials of rural telephone cooperatives protest any plan to raise their property tax rates.

An earlier subcommittee report showed the cooperative, or mutual, telephone companies pay only 50 cents per telephone, in lieu of all other real and personal property taxes. Northwestern Bell Telephone Co. pays $9.00 per telephone, it was stated.

Donnell Haugen of Roseglen, president of the Reservation Telephone Cooperative, Parshall, presented a financial statement saying his company had a net income of only 33 cents per telephone last year.

John Walters, manager of the Polar Rural Telephone Co., Park River, testified any substantial raise in the 50-cent rate would drive most of the co-ops out of business.

Several other officials of cooperatives said their tax rate was set low purposely in 1931 to enable them to give service to sparsely populated areas where private utilities would not come in.

A representative of the Consolidated Telephone Co., Dickinson, said that company lost $51,000 in 1960, and only cut the deficit to $14,000 last year by merging two cooperatives to reduce overhead.

Other testimony indicated seven North Dakota telephone co-ops made money last year, and four others showed a loss.

OK Mich. Subscriber Transfer Between Independent, Bell

The Michigan Public Service Commission on May 18 approved a joint application of Michigan Bell Telephone Company and Banfield Telephone Co. for a revision of the boundary between Michigan Bell's Battle Creek exchange and the Banfield company's exchange.

Both companies presently serve subscribers in the Fine Lake and Bedford communities. The revision eliminates dual service to these communities by transferring all of Fine Lake to the Banfield company and all of Bedford to Michigan Bell.

Also approved was a joint petition for the establishment of EAS between Banfield and Battle Creek. EAS presently is provided from Banfield to the Hickory Corners, Delton and Lacey exchanges of the Banfield company.

Also approved was a separate petition of the Banfield company for the expansion of their base rate area to include the entire Fine Lake community. As a result of these changes, 104 Bell subscribers, who formerly received multi-party Battle Creek service or base rate service at exchange mileage rates, are transferred to the Banfield company and will now receive base rate service.

In addition, 17 subscribers who formerly received Battle Creek multi-party service on a cross-boundary foreign exchange basis will now receive Banfield base rate service. Subscribers who formerly received Battle Creek multi-party service on a foreign exchange basis are in the area transferred to Bell's Battle Creek exchange and will now receive the same service on a normal basis. Other subscribers who formerly received Battle Creek multi-party service on a foreign exchange basis will now receive Banfield multi-party service. Some Banfield subscribers are transferred to the Battle Creek exchange and will receive Battle Creek multi-party service.

Dual service to some subscribers is also eliminated. These transfers increase the total number of Banfield stations from 499 to 616.

Also approved in the joint petition for the transfer of territory was the purchase and sale by each company of plant facilities involved.

Ark. Commission Directs Company to Serve 3 Areas

The Arkansas Public Service Commission on May 15 directed the Perco Telephone Co., Perryville, to construct lines into the Bigelow, Wye, and Little Italy areas to meet demands for services made by residents. The commission order called for making service available to the residents by Dec. 1.

In August, last year, residents of Little Italy and Wye had asked the commission to place their areas under the control of Southwestern Bell Telephone Co.

The Bell company did not wish to link the Little Italy and Wye areas to its Pinnacle exchange on the ground that costs would be high.

In the meantime, the Perco company obtained an REA loan and is planning to cut over its system to dial service in both the communities. The Bigelow company, it is reported, will be tied to these exchanges.

SW States Gets Raises In Oklahoma, Texas

The Southwestern States Telephone Co., Brownwood, Tex., has announced the following increases in telephone rates recently.

Comanche, Okla., 1103 stations, eff. May 21.

	Old	*New*
One-party business	$7.85	$10.25
Two-party business	6.60	8.15
Rural business	7.00	7.00
One-party residence	5.30	5.90
Two-party residence	4.05	4.75
Four-party residence	3.30	3.55
Rural residence	4.75	4.75

Jarrell, Tex., 73 stations, eff. June 26.

One-party business	$9.25	$10.25
Two-party business	7.50	8.50
Rural business	7.00	7.50
One-party residence	5.50	6.00
Two-party residence	4.50	5.00
Four-party residence	3.25	4.00
Rural residence	5.75	6.00

Paint Rock, Tex., 99 stations, eff. July 16.

One-party business	$8.00	$ 9.00
Two-party business	7.00	8.00
Rural business	7.00	8.00
One-party residence	5.75	6.25
Two-party residence	4.75	5.25
Four-party residence	3.75	4.25
Rural Residence	5.25	5.75

Wimberley, Tex., 271 stations, eff. June 26.

One-party business	$9.50	$10.50
Two-party business	8.25	9.25
Rural business	7.00	8.00
One-party residence	6.00	6.50
Two-party residence	5.00	5.50
Four-party residence	3.75	4.25
Rural Residence	5.25	5.75

Approve Ill. Dial Rates, Cerificate for New Area

The Illinois Commerce Commission on May 25 authorized Tampico Farmers Mutual Telephone Co. to increase its rates when its Tampico exchange is converted to dial operation. The increase will give it a net operating income of $8,441 a year.

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The commission on the same date, directed General Telephone Co. of Illinois, Bloomington, to furnish telephone service south and west of Anna-Jones-

Rapid, reliable communications are a must to Trans World Airlines' reservation office in Las Vegas: Recently, increased demand for flight space was causing a commensurate increase in telephone traffic. Unless prompt action were taken, a very real problem was in the making.

Officials of TWA called in the Southern Nevada Telephone Company. All agreed that more telephones were not the answer. What they required was a SYSTEM.

USI was notified of the problem. (SNTCo. had seen us solve problems before.) We engineered and furnished a SYSTEM utilizing 20 trunks, 24 positions, and 10 overflow circuits. Traffic now flows on an orderly, rotation basis. All-important business is preserved and repeated.

Do you have a communications problem? Our specialty is performing the unique. Call us. We'll be where you are. Possibly by air—probably by TWA.

UNITED STATES INSTRUMENT CORPORATION

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boro. The order also grants the company a certificate to serve the area which now is considered open territory, and directs the company to provide the service within 25 weeks from the date of the order.

New York Commission Okays Company's Rate Increase

The New York Public Service Commission accepted a tariff amendment filed by Crown Point Telephone Corp. designed to increase most of its rates on May 31. The company serves about 490 stations in and near Crown Point, Essex County.

In filing its new tariff, the company reported that increased property assessments had added more than $2,500 to its annual operating expense and that other costs had risen also. The new tariff is expected to produce $1,191 additional annual revenue.

Under it, the monthly charges for residential service will be increased by 25 cents and those applicable to three subscribers having party line business service will be increased by 50 cents. No increase will apply to the 61 subscribers having individual line business service.

Approve Minnesota Sale

The Minnesota Railroad & Warehouse Commission has approved the sale of the Dwelle Telephone Co. to the Pioneer Telephone Co. The Dwelle company serves about 2,700 stations in Lake City and Zumbro Falls.

Deny Increase in Louisiana

A petition to the Louisiana Public Service Commission for an increase in rates by the Southwestern States Telephone company has been denied. The order refusing the increase was signed by Ernest Clements, chairman, and John J. McKeithen. Commissioner Knight dissented in part expressing the feeling that the company was entitled to some relief.

Wisconsin Commission Gets Three Requests to Sell

The Wisconsin Public Service Commission, in hearings on June 6, 7 and 8, received the following requests:

Of the Calumet Telephone Co., Forest Junction, to sell its properties to the Stockbridge & Sherwood Telephone Co., Stockbridge.

•

Of the Lebanon Farmers Telephone

THEY COULDN'T
PULL
IT DOWN!

U.L. APPROVED
C.S.A. APPROVED

The 3" steel pole bent . . . but the new improved aluminum BOOTHETTE® was still in place . . . and as good as new.

Pictured is the result of a test conducted in Atlanta. The telephone could not be jerked loose, although the force of the pull bent the steel pole. The BOOTHETTE® did not break from the housing and was not harmed in any way.

Protection against vandalism is one more reason why the BOOTHETTE® is a sound investment for pay station installation. It is rust-proof, light in shipment, easily serviced, good looking and long lasting.

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Co., of East Maple Creek Telephone Co. and of Farmers Co-Operative Telephone Co. to sell their three properties to the Wisconsin Telephone Co.

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Of Mondovi Telephone Co. to purchase the properties of the Drammen Telephone Co. and of Jackson Telephone Co.

General of SW Intervenes in Ark. Coop's EAS Request

The General Telephone Co. of the Southwest, Brownwood, Tex,. on May 21, intervened in an application by the Southwest Arkansas Telephone Co-operative, Inc., Texarkana, Ark., to provide extended area service to the Southwest company's exchanges of Fouke and Trigg (TELEPHONY, May 19).

The General company told the Arkansas Public Service Commission that it felt it had a stake in the application, because it owns the Texarkana exchange that would service Fouke and Trigg.

General of the Southwest said further it would "go along" with the EAS, provided its version of the contract were approved by the commission, signed by the Southwest Arkansas Coop, and if the cities of Texarkana, Ark., and Texarkana, Tex., would accept the higher charges incident to General's participation in the EAS.

No date has been set by the Arkansas Commission for a hearing.

OK Merger of 2 in Pa.

The Pennsylvania Public Utility Commission on May 14 approved the merger of New Wilmington Telephone Co., Erie, with General Telephone Co. of Pennsylvania, Erie. Both companies are subsidiaries of General Telephone & Electronics Corp., New York City.

TROUBLE NOT FOUND

Concluded from page 28

thing that will never happen again. On the other hand the trouble may return. Will you call us at once if that should happen? Would you like for us to call you several times during the next few days to see if you have had any more troubles?"

The first consideration in any business is to please the customer. He is the man who pays the bills. The telephone company is also interested in maintaining its plant in good condition and giving good service.

Dogged Pressures

Money is what you'd get on beautifully without if only other people weren't so crazy about it.—MARGARET CASE HARRIMAN.

KLEIN PREFERRED BY ELECTRICIANS AND INSTALLERS

If you know Klein for pliers, climbers, grips and other tools, you will be interested in the many other products in the complete Klein line, such as those illustrated.

In leather goods, Klein has been supplying the largest utilities for years with tool belts, safety straps, tool pockets and other equipment designed for maximum safety . . . longest life.

Klein knives and scissors are specially designed for electricians and built to stand hard usage.

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5227 WEB BELTING BELT
5129 FLASHLIGHT POUCH
2100-5 "XELA" ELECTRICIAN'S SCISSORS
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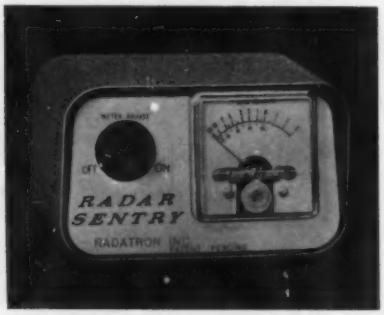
News on New Products

MICROWAVE RECEIVER—Available from Radatron, Inc. is its Radar Sentry, miniature, transistorized microwave receiver, designed as a trouble shooting and testing instrument.

This receiver was designed for the needs of users of radar and microwave equipment, such as research and development laboratories, public utilities, commercial airlines, police departments, news services, TV broadcasting stations, surveyors, railroads, military services, naval and merchant ships, and for the medical profession, Radatron states.



The small compact unit weighs only 13 ounces, measures approximately 3-⅝ inches wide x 2-¼ inches high x 3-¼ inches deep. It is powered by two 1,000-hour, self-testing mercury batteries.

The receiver is capable of receiving CW signals and other types of modulation through a frequency range from 1,000 megacycles in the "L" band up through 11,000 megacycles in the "X" band. Detection of radiation is indicated by an audible 800 cycle tone. The instrument is also made available with a calibrated meter. It is sensitive to signal levels as low as 65 dbm.

Among the Radar Sentry's uses, says the company, are the detection of leakage from wave joints on high powered microwave transmitters, and the checking of marine and aeronautical radar emissions.

In the laboratory, the unit can be used for antenna gain tests and for measuring antenna patterns, wave guide connection leakage, nulls in slotted lines, etc.

Because of its easy portability, the manufacturer adds, the Radar Sentry can be used by personnel working in areas near high energy radar transmitters, as a radiation sensor. It will give audible warning when radiation intensity goes above a predetermined level, and may be adjusted according to individual specifications. Request NP1917.

•

WHITE COPY PAPER—A white copy paper designed to provide permanent, uniformly sharp copies of paperwork in day-to-day business operations is now available from 3M Co.

Called "Thermo-Fax" Type A and B Systems Papers, 3M states that up to 25 bondweight black-on-white copies may be obtained from a single Type A original for two cents each.

The company explains that the Type A paper is used as any other office paper or form. It may be preprinted, typed, written or drawn upon. This paper, which may be used with any Thermo-Fax Copying Machine, also erases easily, and information may be added, deleted or changed.

The Type B paper is used with the Type A original. 3M points out that information may be recorded on a single Type A sheet, which in turn will make up to 25 or more "B" copies in white (or a choice of green, blue, pink, or canary for color coding purposes).

The company adds that double coated Type B papers are available which will copy on both sides. The B copies can serve as originals for making copies with other regular copy papers. Request NP1918.

•

TWO-WAY RADIO—General Electric is adding a heavy-duty 80-watt high-band base station to its Progress Line FM two-way radio equipment. This radio is designed to help stretch companies' communication capabilities by permitting them to talk farther and longer without the expenses of special super-powered equipment.

The new unit is described as especially suitable for telephone maintenance applications requiring continuous-duty, round-the-clock activity, GE says. It will be particularly useful, the company pointed out, in fleets where the dispatcher is constantly communicating with a larger number of cars or trucks.

A new tube arrangement provides cool operation when message traffic is heavy for long periods of time, thus saving components, and requiring less maintenance.

The new equipment will also be valuable in repeater systems. Located remotely from the office where the dispatcher has his microphone, repeaters are triggered constantly by incoming messages and are frequently on the air in excess of normal usage time, GE adds. Because heavy-duty circuits give the radio's components long life, the service technician needs to make fewer trips to the unattended repeater site to replace parts.

Another advantage of this 80-watt two-way radio is a protective circuit which saves power amplifier tubes from damage when power drive to the PA tube is lost.

The new GE Two-way radio is engineered to operate in the 130-174 MC range. Request NP1919.

•

BOLT ANCHORS—Rawlplug Co., Inc., is offering its multiple-unit bolt anchors in eleven sizes, from ¼ inch to 1-¾ inches in diameter.

The four new sizes added are the 1-⅛ inch, 1-¼ inch, 1-½ inch, and 1-¼ inch diameter Multi Calks.

Multi-Calks, as described by Rawl-

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Chicago 5, Ill.

Please have the manufacturer send me without obligation the literature indicated by the following numbers:

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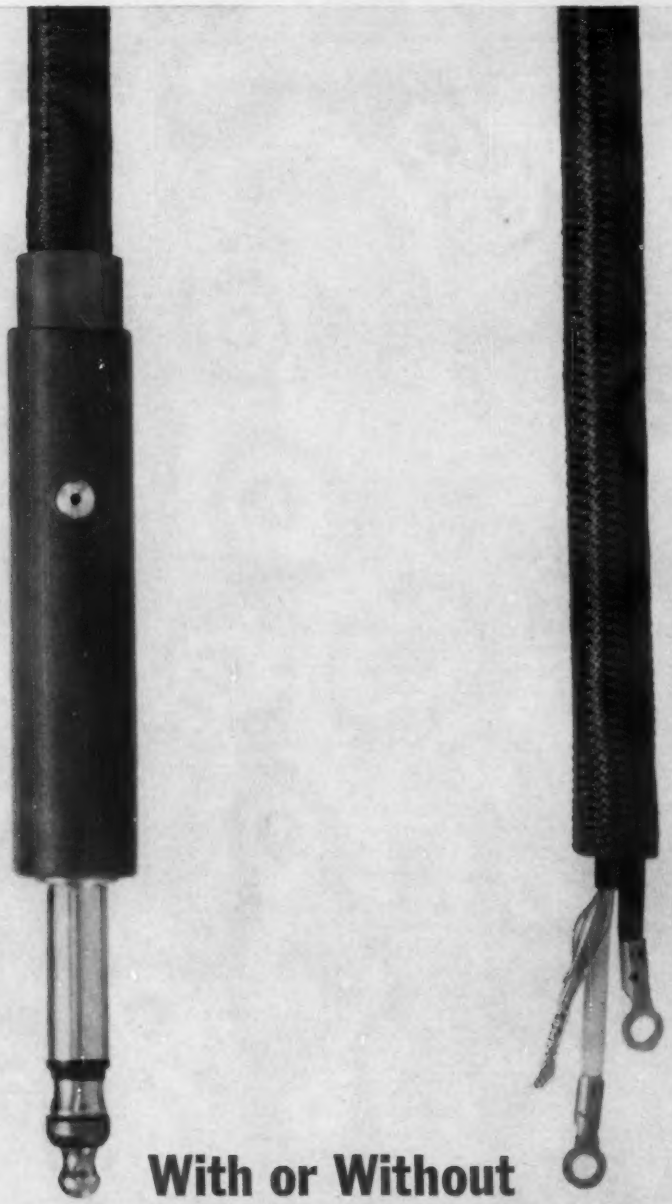

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A LITTLE SOMETHING FOR ALMOST EVERYBODY

or How to succeed in communications while keeping ahead of the Joneses

SOMETHING unusual about Lynch is that it can deliver communications equipment to solve problems for just about everybody . . . from the big operator to the little fellow who's trying to run a modest-sized business in a toe-to-toe market.

WELL, here's the hottest new item that Lynch has turned out for quite a spell . . . a *microwave multiplexing system* that's just about right for everyone—Telephone Company, Utility, Railroad, Pipeline, Military, etc.

WE'LL call it the B910 (because that's what a Lynch secretary assigned as a model number), and we suggest you might give some consideration to this feature:

THE B910 is inexpensive to buy, inexpensive to expand and inexpensive to maintain. It uses a minimum of common equipment . . . and this in itself is quite uncommon. You can start with as few as one channel (that's as few as they come) and build up to 600, with no penalty whatsoever.

WE don't mind telling you: 120 channels of B910 (that's ten 12-channel groups) can be applied directly to the microwave radio equipment without any complicated gadgets . . . and with no supergroup equipment either. The Lynch filters turn the trick . . . and each channel has built-in oscillators for modulation and signaling. Think what that means when there is an indication of oscillator failure (a remote possibility, but our individual oscillators are subject to the same conditions as expensive master oscillators). You're still on the air with all the other channels!

WE don't mind telling you: Transistorized construction gives you all these familiar benefits (not so familiar if you're still using vacuum tube equipment): small size, light weight and less heat, longer component life. Think of all the beer you can buy with the money you save on the low power consumption and lower maintenance cost. You know *that* story . . . and the Lynch B910 makes it non-fiction.

AND, we don't mind telling you: Lynch's well known knack with filter systems, designed into the B910, relieves you of the cost of intermediate supergroup modems and other common equipment, avoids expensive hybrids, provides options for easy drop and reinsert configurations and, of course, sounds best (you can actually recognize the fellow on the other end). The Lynch B910 can't overload the microwave system, because it utilizes single-sideband, suppressed carrier transmission. Among the L-E-T-T-E-R-S the B910 works with are CCITT, the indomitable W. E. "L" (we have two orders from them, incidentally) and some others, if you'd care to guess (we have lots of options).

AND if that's not enough, the B910 has been producing toll revenue for over a year . . . longer than any other similar transistorized system in the country. You may have heard that it is operating over a 1400 mile pipeline system; and that it is providing communications between some islands in the South Pacific via a scatter radio system.

IF you're in the communications business and not currently using two tin cans and a string, we suggest that the Lynch B910 can do the best possible job of solving your particular problem at the lowest cost. It won't hurt you a bit to start on a budget and grow as the Joneses move into the neighborhood and order new service. If Mr. Jones happens to work for W. E. or one of those other big outfits, you might give him our number. What Lynch can do for you, it can do for the Joneses, too.

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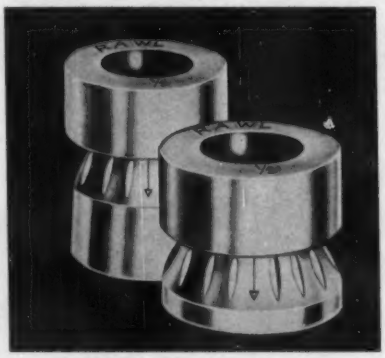
plug, are multiple-unit machine bolt anchors designed for big jobs of masonry anchoring where heavy holding



power is very important. The Multi-Calks are available in two styles: plain for thread-out applications and threaded for thread-in applications. Request NP1920.

•

DISTORTION ANALYZER — The Phase Distortion Analyzer which allows telephone lines and other voice communications media to be equalized for digital data transmission in less than 15 minutes is announced by Hallicrafters.

The Model PDA-241 is described by

the company as "compatible with any phase-type or amplitude-type commercial or military digital data transmission system."

The manufacturer states that the unit is not limited to digital applications, but can be used to help equalize voice channels wherever phase distortion is a problem.

Telephone lines are highly desirable media for digital data transmission because they are universally and economically available, Hallicrafters points out. Most digital systems, however, need transmission media that are relatively free of distortion. This is particularly true of the phase-type systems preferred for high-speed transmission with maximum signal reliability.

By simplifying the distortion measurement procedure, the Hallicrafters analyzer is reported to have reduced the time and skill required to a practical level and one which, it is believed, should encourage wider use of tele-

phone lines for data transmission.

The Hallicrafters unit will measure relative phase distortion and envelope distortion over the passband 300 to 3300 cycles per second for any voice frequency transmission line. Both phase and amplitude response can be analyzed simulataneoulsy.

Operators at each end of a two-way voice channel can "talk back" by means of an order-wire circuit built into the analyzer. Request NP1921.

•

SPLICE CLOSURES—The Puregas Equipment Corp. announces recent purchase from Engineering Enterprises, Inc. of Engineering Enterprises' Peaco splice closures operation. Future sales will be made through Puregas.

Puregas plans to add to the special features of Peaco splice closures with emphasis on fittings for continuous flow pressurization systems. The company states that the splice closure units permit easy entry into the splice sections of plastic sheathed cables, although the closure is a permanent seal capable of being sealed without tools or heat. Also, the high impact plastic sleeve and components are said to be impervious to moisture, acids, alkalies, oils, abrasion and vibration. Request NP-1922.

•

BURNISHER-CLEANER—A tool specifically designed for cleaning spark plugs, voltage regulators, contacts, relays, and circuit breakers with diamond particles is now offered by Jonard Int. Corp.

Called the Diacrom Burnisher-Cleaner, Jonard says it has proven effective in the electronics, aircraft, marine, and automotive industries. In addition to its cleaning effectiveness, this burnisher serves for other deli-

cate operations such as in servicing vending machines, washing machines and other relay-actuated appliances.

The shaft is made of nylon, which is said to provide greater flexibility of use in hard to reach areas. Also, the Diacrom burnisher can be used without turning off the power. Service of

"DAVIS T-66 is more mobile and does twice the work"

says Florida Contractor!

Ask Preston Pipeliners, Inc. of Hialeah, Florida, how they like their Davis T-66's. This company recently purchased four units along with Davis Hustler trailers. The company's report follows:

B. F. Preston of Preston Pipeliners, Inc., is shown above with 3 of his fleet of 4 Davis T-66's and Davis Hustler Trailers.

"We started off by saving $4,000 on initial capital investment; it would cost us that much more for competitive equipment," says Preston Pipeliners, Inc., following their purchase of four Davis T-66 Trenchers. "Besides there's not another small ditching machine to compare with it. The Davis is more mobile and will do twice the work. Most of our jobs are in hard coral. It is impossible to hurt the machine because of the torque converter drive and hydraulic controls. Our best day has been 2,000 feet in eight hours working in sand with some scattered coral."

Reports like these are not unusual from owners of Davis T-66 Trenchers. Ground-gripping, positive traction with no rubber-tire bounce...high flotation—only 3.6 psi...ability to cross trenches...and compact design with only 37" width put the Davis T-66 on jobs where others can't operate. It's a real money-maker for trenches ranging from 16" wide, 24" deep to 4" wide, 66" deep. Get complete facts on all the high-performance features of the Davis T-66 today!

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DAVIS T-78 TRENCHER with detachable D-100 backhoe can handle any digging assignment from 4" to 36" wide to 8' 4" deep!

DAVIS W-36 TRENCHER is positively self-propelled by six-speed winch drive. Digs 3" to 6" wide to 36" deep.

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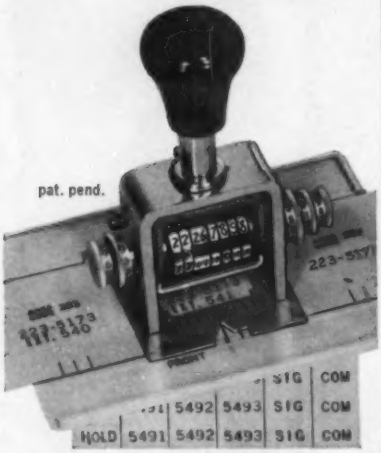

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delicate equipment, while in operation, is possible with this new burnisher-cleaner.

Advantage of the Diacrom, as set forth by the company, is extremely high abrasive power. The diamond particles are held to the surface of the tool by means of a bond so that only the surface of the diamonds comes into contact with the surface to be cleaned. The method used in distributing the diamonds over the surface, according to Jonard, maintains uniformity, leaving finished surfaces extremely smooth and perfectly polished. The bonding metal also prevents the Diacrom from ever becoming clogged.

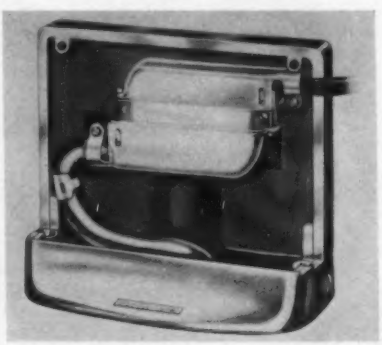
Further, Diacrom is described as completely wear-resistant. . . . will last almost indefinitely.

Diacrom Diamond Burnisher-Cleaners are available in three models—one for rapid cleaning of industrial relays, another, for cleaning intermediate relays, and a third, for cleaning extra-sensitive relays. Request NP1923.

•

FLOOR CONNECTOR—Floor Con has recently completed the design and manufacture of a new telephone floor connector, the Model 103.

The Model 103, according to George Gill, Floor-Con owner, was designed to enclose the amphenol plug connec-



tors in most new telephone installations using key telephone sets or other complex equipment.

Floor-Con allows telephone work to be completed in advance of moving, the company states. Approved and specified by telephone companies, Floor-Con connectors are used in industry, business, and government buildings.

The Model 103 attaches to all makes of under-floor ducts, floor boxes and single conduits through the floor. Request NP1924.

•

DIAL-TYPE INTERCOM—What is described as the first dial-type loud speaking intercommunication system is announced by Webster Electric Co. Called the LS Series Telecom, the system features compact dial-selection speaker-receiver units and a fully automatic private switchboard.

The company states the system has

simple, economical wiring, and that installation is low-cost.

The switchboard, much the same as a community switchboard, provides four links (conversation paths). It permits four simultaneous conversations and 23 lines, each line accommodating one master intercom station. Any number of extensions can be installed with each master station.

John VanHorn, Webster's Telecom engineer, said that the LS Series provides all the services of a conventional loud speaking intercom; the dial system does not require as much space for the same number of stations; the central switchboard does away with the need for large multiconductor cables to each unit; a standard two-pair telephone cable, pencil-like in diameter, connects master stations to the switchboard; and the switchboard can be located in any convenient spot.

The dial-type intercom takes no more desk space than a telephone, Mr. VanHorn said. A caller merely dials the number of his intended party. Both calling and receiving instruments emit an audible signal to indicate a conversation can take place. The person called replies after pressing down the talk-listen switch. He may then turn the lever to "idle position" and complete the two-way conversation without operating switches.

Listed as other advantages of the new intercom system are:

Individual plug-in transistor amplifiers for each link to assure uninterrupted service.

Diode circuitry, which means few moving parts . . . few service problems.

Standard American-made parts; single central power supply unit in switchboard cabinet for entire system.

Special control to adjust "listening level".

Standard dial tone and busy tone.

Dialing and switching circuits independent of talking circuit, for quiet operation.

Automatic bypass of inoperative or busy links. Request. NP1925.

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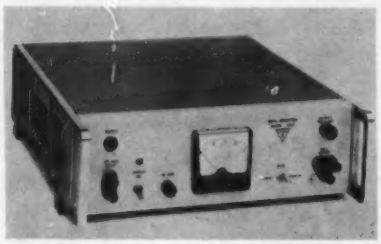
SOLID STATE INVERTER—The first of a series of solid state inverters has been introduced by Palo Alto Engineering Co.

The new inverter—Model 4010—is designed to power 60 cps equipment



when only a dc source is available. This solid state inverter has a rugged housing that can be adapted to rack, portable or bench use in the field or as an emergency stand-by power source.

A voltmeter is provided as standard equipment for this unit, and output voltage can be adjusted ±10 percent. Provisions are made to connect an external synchronizing signal.

Protection from line and load transients and overloads is built into the inverter circuit. A manually reset overload relay saves the expense and time of fuse replacement. A fuse is also provided for back-up protection, the company states.

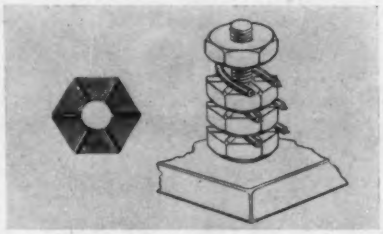
Input voltage is 26-30v dc. Output rating is 115v single phase, 60 cps, 180 va. Request NP1926.

•

INSULATION CUTTING NUT—Suttle Equipment Corp. has announced the availability of an insulation cutting nut. (U. S. Patent Applied For.)

Designed for maintenance replacement and on new product in connecting blocks, terminal blocks, and protective equipment in the telephone, electrical, and electronics fields, this cutting nut is formed with insulation cutting notches on its upper surface. A flat washer surface underneath is also an integral part of the nut. Individual wires are wound around terminal studs, the nuts tightened down, and the electrical connection is made.

Labor now expended in stripping wires is eliminated, Suttle engineers say with the use of the cutting nut. Total time for wiring up terminal blocks is said to be cut in half. Also,



the need for separate washers on connections is eliminated.

Sizes available are Suttle's No. 8-32 thread and No. 10-32 thread, both used in the communications industry. Request NP1927.

Manipulating Truth

There is no wisdom save in truth. Truth is everlasting, but our ideas about truth are changeable. Only a little of the first fruits of wisdom, only a few fragments of the boundless heights, breadths and depths of truth, have I been able to gather.—MARTIN LUTHER.

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FROM COLLEGE TO WORK

Continued from page 21

experience of college graduates in our business, in quantitative terms, and see whether this might help to point our noses in the right direction. So now I am going to give you a few figures, and then say what they suggest to us.

A generation ago, testing our intuition we made a first effort to find out what relationship there might be, if any, between the performance of college graduates in the Bell System and their scholastic performance in college. The results showed that proportionately, good scholars had progressed further in our management than poor ones.

In recent years we have made a similar study on a broader scale. We took the records of 17,000 college men in the business who could fairly be compared with each other, and examining their records sought the answer to the question: "To what extent does success in college predict success in the Bell System?"

Salaries Criterion

As the criterion of success in the business, we used men's salaries. What was a man's salary compared to the salaries earned by others who had been working in the company for the same length of time? This criterion was used simply because a man's pay reflects the judgment of his bosses concerning his value to the company.

I realize these judgments are sometimes off the mark, both up and down. But considering the whole group of men whose records we have analyzed, I know of no measure that would better reflect their responsibilities in the business, relative to each other, than the salaries paid.

To measure college experience we considered, first, a man's academic achievement; second, his extracurricular achievement; third, the extent to which he earned his way.

Now for the results:

The figures show that the single most reliable predictive indicator of a college graduate's success in the Bell System is his rank in his graduating class. A far greater proportion of high-ranking than low-ranking students have qualified for the larger responsibilities. Forty-five per cent of the men in the top academic third were in our top salary third; while of those in the lowest third of their graduating classes, only 26 per cent made the top salary third.

Here is a parallel indicator: Only 21 per cent of the top-third students were in the bottom salary third—but 40 per cent of those in the lowest third at school were also in the lowest third in salary. That is a difference of almost two to one.

Since academic ranking might not mean the same thing from college to college, we checked out our figures against college quality. The colleges were grouped in three classes—above average, average, and below average. This grouping was based on years of association with the many colleges from which men come to us; on discussions with a number of college authorities; and on published studies.

We found that college quality does make a difference. For instance, 55 per cent of the men who ranked in the top third in the "above-average" group of colleges were in our top salary third, and 31 per cent in the lowest academic third made the top salary third. We also found, however, that top students from average or below-average colleges have done better than average or low-ranking students from above-average colleges. In short, while a relationship does exist between college quality and salary, rank in class is more significant. Our figures do *not* say to us that we should look for men only in the so-called "above-average" schools. On the contrary, the man and what he has done are much more important than where he did it.

Extracurricular Activities

Next, what about extracurricular achievement? Well, the data show *some* relationship between a high level of non-academic achievement and salary later attained. Men who were campus leaders reached our top salary third in slightly greater proportion that those who were not. But it is only real campus *achievement* that seems to have any significance. Mere participation in extracurricular goings-on does not.

Finally, if a man earns part or all of his college expenses, does that help us to gauge whether he will be successful in our business? The facts show that this *by itself* is not a significant yardstick. Please don't misunderstand me. Plenty of men who worked their way through school have worked their way up in the Bell System. But taking as a group *all* men who earned college expenses, they are in our different salary thirds in much the same proportion as men who did not.

Of course, these factors I have mentioned can be combined in various ways. For instance, we know the dif-

ferent percentages of men in the top salary third, depending on the various combinations of scholastic standing, college quality, and campus achievement. However, I see no point in drenching you with figures. The main thing is that they all re-emphasize the points I have already stressed:

First, the most important single indicator for predicting success in our business is scholastic achievement.

Second, the usefulness of this indicator can be improved by taking into account college quality.

Third, extracurricular achievement has the least usefulness of any of the three indicators.

Helps in Selecting Men

Now I have given you the main facts. Do they mean that we should now proceed to offer jobs indiscriminately to anyone who happens to be in the top third or top half of his graduating class? Of course not. That would be absurd. There are top students who could no more be good business managers than I could read Chinese. Furthermore I expect most of these men are smart enough to know it.

What we have here, as I said before, are some hints—rather strong hints—about where to spend the most time looking for the men we do want, the men with intelligence *plus* those other attributes that give you the feel, the sense, the reasonable confidence that they will make things move and move well. And I will tell you what these statistical guide-lines mean to us today: They mean that more and more, we are disposed to look *within* the top half of the college class for the individuals to whom we will offer career opportunities. We haven't yet gone all the way on this, but that is the general direction.

I realize some people will disagree with this. They will say that hiring according to marks will get you only certain kinds of people. They will say that other statistical studies suggest contrary conclusions. They will say that in many schools today, every man who graduates has met a high standard. They will say that by looking only in the top half, we shall be denying opportunity to the lower half.

As to the first point, we have no idea of hiring according to marks alone, and I think I have already made that clear. As to other statistical studies, I know of none that has anything like the weight of ours. To our best knowledge, there is none other of comparable depth and breadth. The main comment I would make on all the points raised is this:

No one can dispute that many below-average students may become above-average managers. And, admittedly, there are men who make low grades in college but have plenty of brains. Nevertheless, we who employ college graduates must be concerned with the relative probability. Hiring the wrong man is costly in time, effort, and money, frustrating to all concerned, and dangerous for the future. There will always be some mistakes made in the hiring of people. The question is—how can we make as few mistakes as possible? And how can we disregard the evidence that confronts us?

When you hire a man of high intelligence but low grades, in effect you have to bet that a drive he hasn't yet shown *will* show after he goes to work. If, on the other hand, you are considering a high-scholarship man,

beauty, uniformity and economy!
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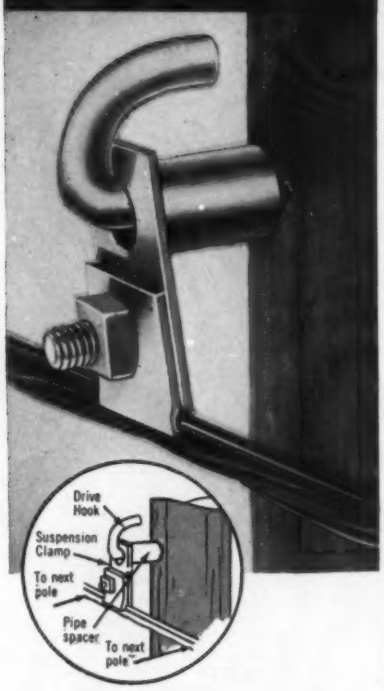

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Suppose you were weighing the choice. Which way would you lean if you were hiring thousands of college men? Sometimes our college employment people pick lower-scholarship men, *but they need to feel strongly that other factors justify this,* for they know they are betting against the odds.

And here I will make a personal guess with no statistics at all to back me up. My guess is that there are many more representatives of the diplomaship formula down in the lower ranks of college classes than there are on the top side. So I put it to you: As we look for career managers, why should we spend a large part of our effort searching among men who have made a career of just getting by? The proper goal of a business can't be just to get by. No enterprise with that object in life will be able to do what the times demand. But if we should content ourselves with get-by people, that is the way they would shape the business.

Now I have been talking in plain terms, some of them critical. But we are much more critical of ourselves than of others. There is another side to all this, and that is how a business influences men after it employs them. You remember I remarked that if we build a strong base of fine people, and then run the business so that they cannot grow, then heaven help the business. Just as important, if good men do not have full opportunity and encouragement to grow, that is a wrong to them.

So we come to these questions: How do our ways of working affect men's capabilities? How can we better judge the developing talents of different men so that all talents will be used to best advantage? How smart are we in bringing out a man's best, and also in gauging his true potential on the basis of his actual experience with us? These questions are crucial.

Must Help Managers Grow

I wish that in answering them, we could say that every boss had the savvy needed to help and inspire everybody who worked for him, and had the insight too to judge his men well. But this simply is not the way things are. Too many bosses cling to established methods of working just because these methods have been successful in the past. Not enough of them realize that helping tomorrow's managers grow is one of their prime responsibilities. Too few have the ability to discern potential talent and then challenge and test and release it.

Of course you keep trying every way you can to get these things done better. But I want to tell you briefly about just one of the efforts we are making, for this is a bit unusual.

About six years ago we started a long-range study of the experience and performance of a group of 425 young managers in six of the Bell telephone companies. The idea was, and remains, to learn everything we can about each one of them—his personal assets and liabilities, changes in his point of view, the step-by-step influence of his experience on his character and capabilities. To get this knowledge, experienced management men and a group of psychologists work closely together.

Studied Every Several Years

The men who entered the study were first examined and tested every which way, physically and mentally, during a period of several days. Then they were carefully rated.

Each year thereafter, each man has been interviewed. These interviews review in detail the man's experience and progress, his successes and failures, his hopes and his goals. Every several years it is planned to repeat the full assessment.

Incidentally, all the information obtained is kept in confidence at an independent research institute, and each man knows that nothing pertaining to him as an individual will be reported. Also, we realize that when you study a group of men, this in itself tends to have some influence on them. We do all we can to minimize this, and to get our information in such a way that their normal life in the business will not be interfered with.

Now, what are we getting out of this undertaking? The short answer is that we get a far more thorough, complete knowledge of a group of men in our business than we ever had before—knowledge of their qualities, their shortcomings, and the impact that our working environment makes on widely different individuals. The purpose of course is to use this knowledge to do a better job not only in hiring but also in developing tomorrow's managers.

This by its very nature is a long-range project. But already it is having some very practical results.

For one thing, what we have learned about this group of men strongly sup-

ports our conclusion that scholarship is a good indicator of business success. We have all the more reason, therefore, to organize our program for employing college graduates along the lines I have already indicated.

Another thing we learned early was that many of the men thought our initial training procedures were dull and boring. So in several of the Bell companies, we have been working toward a quite different way of starting college graduates off.

The usual practice has been to assign a man temporarily to first one department, then another—a few weeks at a time—so that he could get a general picture of the business. Then, after quite a few months of this, he is given a real job to do. The experimental program is quite different. The new man gets one week of initial training. Then he is assigned to a manager who has extensive responsibilities, and the latter *immediately* gives him a real job to perform—not "made work," but something that needs to be done and demands right away the level of intellectual effort and application that the recent graduate has been trained for. Of course the manager supervises and gives direction; but the responsibility is the man's, and he knows that what he is called on to do is a regular, necessary part of our business operation. This is still training—but with a difference. Naturally the man who gets an assignment under these conditions has an immense amount to learn; but the basic concept is that when he has to get a real job accomplished this will greatly increase his motivation to learn—for he *must* learn many things in order to carry out the mission.

Must Have Room To Achieve

I should add that the manager under whom he works is carefully chosen and trained. It is vital that he give the new man room to achieve something on his own—and also, room to fail. Of course we don't want anyone to fail. We want each individual to succeed. But ability to assume responsibility *successfully* can only be learned when a man has the latitude to fail.

This kind of initial training has spread quite a bit in our business in the last few years. You might well ask, "Why shouldn't it? It only seems like common sense." I feel that way about it too. It certainly checks with my own early experience, when I was fortunate enough to have bosses who didn't waste any time in giving me real jobs to do. But the point here is to work things around so that good and exciting early experience will be less dependent on mere good fortune, less a

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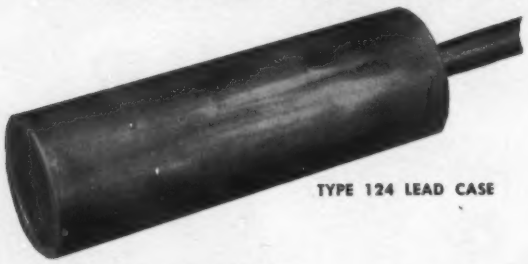

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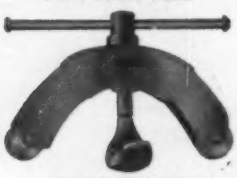

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matter of chance, less hit-or-miss.

A third result of our study of the 425 men was not foreseen when we started it. You will remember I said that the men went through a thorough assessment by experienced management men and psychologists. This is not just a matter of answering questions. It also includes the assignment of real-life management problems of the kind we have to deal with in our business every day. Singly and in groups, the men work on these problems that test their judgment, their ability to deal with other people, their leadership qualities, their performance under stress. This is all done under observation and each man's performance is carefully rated.

Tried in Top Management

Some plant department managers in one of the Bell companies heard about this and asked if the same procedure couldn't be tried with employees who were being considered for promotion to the first level of management. To make a long story short, this was done and the results were eye-opening. It was found that a high proportion of the men under consideration simply did not qualify for supervisory jobs.

Today these assessment procedures are being used at 17 locations throughout the country to help management do a more selective, more careful job in promoting employees from the ranks. By such means the local managers of the business are much better able to reach right decisions and avoid costly mistakes in evaluating people.

Can similar means help us reach right decisions further up in the organization? Only time and experience will tell. Last summer one Bell company decided to use the same kind of procedure to aid its judgments on a number of men in middle management, and the head of that company tells me the results were very useful. But a thing of this sort has to prove itself step by step, and looking to the future I can only say—we shall see.

Long-Range Research

All of this, as I indicated, comes out of our study of the 425 men. And a point worth stressing is this: To improve your attack on hard problems, sometimes it helps greatly to take very special steps. This study, for example, is a piece of long-range research. Yet the knowledge it is yielding has already pushed many managers in our business into new, more promising action. This is always what you are after —but sometimes, as I say, you can only generate the push by extraordinary means.

Will the study yield further knowl-

edge in future years? We certainly hope so. Most of the 425 men are continuing in the business, and we are continuing to keep track of what happens to each one. Some are moving further and faster than others. Some will succeed and some will fail. When we know just how and why they succeed or fail, then we can systematically compare this knowledge with what we knew about them when they were first hired. Using these findings, we then hope to be able to make better judgments in choosing men for high-level jobs as well as for their earlier management jobs. And to refer again to the initial hiring, we shall be better able to choose between good students who would not do well in our business and those who are more likely to succeed.

Can we find personality factors that contribute to failure? Are good and poor performers basically different in their attitudes toward money, family affairs, satisfaction in work? Does the eager-to-please young man really have as much on the ball as his smiling willingness might lead one to think? Why does one man start like a whiz and then tail off, while another starts slowly but keeps on picking up speed?

The better we can answer questions like these, the better job we shall do in selecting, training, and helping to develop the managers the future needs.

Now, I am sure you have observed that all through this talk I have been discussing two aspects of a single basic question: How do we continuously keep building the best managment we can? One aspect is the preparation for the future that men obtain in their college experience. And I think the point I have made is simple and clear: In employing college graduates, we need to center our attention primarily among the men who have done well in their academic work.

Second Aspect

The second aspect is our own responsibility to help men develop their powers after they have joined the business. The proper goal as I see it is that everyone should have the opportunity and encouragement to do his best and realize the satisfaction that only this can give. Everyone of course cannot be in the top tenth or quarter or half of any organization, and it is not to be thought that any individual is intrinsically more important than another. The need is for everyone's best according to his abilities. But these alone should mark the boundaries of a man's progress, and his course should be as little affected as possible by luck and by other people's superficial judgments.

To conclude now, I strongly believe, that genuine excellence in management is vital to the nation's welfare and to our competence and leadership in world affairs. The challenge to achieve this strikes equally at you in the world of the colleges and at us in the world of work. And it seems to me further that the essential question before us is: What are the basic values that men are learning to live by?

Earlier I used the term "diplomaship" to describe a kind of value that in my judgment lies squarely across the path of excellence. And I asked, are the colleges doing all they can to create a different view? But the same questions should also be addressed to ourselves in industry. Are we doing all *we* can?

I think it essential that all of us do more—much more. Not you alone, or we alone, but all of us. In our time too many people have come to see their futures in terms of circumstances outside themselves, in terms of an institution that will do something for them. This value is upside down. The future must be seen in terms of what a man can do to contribute something, to make

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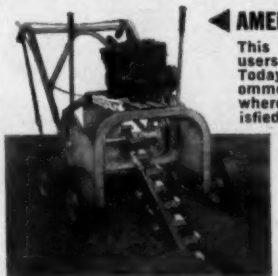

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something better, to make it go where he believes with all his being that it ought to go. Opportunity is not so much in the situation, as in the enthusiasm, the intelligence, the judgment and courage that men bring *to* the situation. Where do interest, vitality, the sense of challenge, and ethical awareness come from? Are these things that work gives to a man? No, they are not. These are things that men bring to work. And when education, business, and government all reinforce each others' efforts to help men grow as bringers, then and only then, I believe, we shall have excellence indeed.

Particularly to the undergraduates in this audience, I would say as a final word: One of the most popular shows on Broadway this year is called, "How to Succeed in Business Without Really Trying." It is a funny show and if you get to see it, I think you will enjoy it. However, I do have one suggestion—I wouldn't take any notes.

ANNUAL REVIEW

Concluded from page 33

type of wall material. In the use of a tone signal to locate pre-wiring in a wall, there is a definite requirement for a rather restricted level of output. Too high an output makes it difficult or impossible to accurately locate the wire. The buzzer used in this tone generator requires much less frequent adjustment as a result of a more efficient armature and contact arrangement.

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TONE LOCATOR (Fig. 6). Orbit Industries also has developed the TL-2 Tone Locator, designed for use with

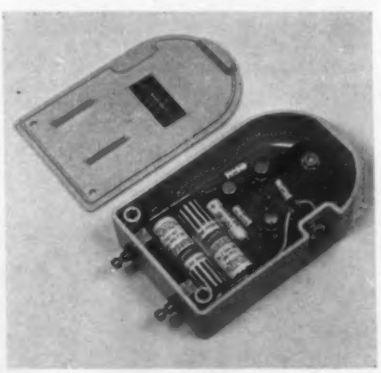

Fig. 6 Tone locator TL-2.

the Tone Generator TG-1. The locator is a 60 db self-contained, three-stage transistor amplifier that is used with a lineman's test set. It will accurately locate wiring concealed behind lath, dry wall and metallic foil insulation.

(To Be Continued)

COMPETITION

Continued from page 25

I submit, however, that the speculation in telephone properties today is a direct parallel to that which occurred in the electrical industry some 30 years ago. I further submit that, if we cannot bring ourselves to police ourselves, the telephone industry will nonetheless be policed.

This is the age of political excesses. When an administration can exert enough influence to force the competitive steel industry to maintain a *status quo* in the price of its products, without any legal justification for doing so, who can forecast the stringency of controls and regulation to which even the smallest telephone company would be subjected, if the federal government is given a reason to intervene?

Competition among established telephone systems in the inevitable integration of telephone properties is not a bad thing in itself. The operating companies are concerned with book values and the prospect of adequate earnings to support the price of their securities. When such basic considerations are ignored, however, and when speculator competes against speculator in reckless bidding for properties, their collision of interests has a detrimental effect on the dignity and integrity of the entire telephone industry.

If earnings great enough to support the inflated price of speculative securities fail to materialize—and I don't see how they can—the price of such securities is bound to drop, disillusioning the investing public, not to mention those who may have traded their telephone company for dubious securities in the first place. The hue and cry that will follow will not fall on deaf ears. Already there are indications of government's awareness of the situation. In February of this year, Norman M. Clapp, Administrator of the REA, included a statement of his personal feelings in this matter in an address delivered before the Minnesota Telephone Association convention, and I quote:

> "If financial promoters move in on the small telephone companies; if such promoters are allowed to substitute their tortuous tentacles of control for sound, responsible local management; if they are permitted to fashion a blue-sky type of financial pyramid out of token equities in operating telephone companies; then this industry . . . and the future of good local service are in deep trouble."

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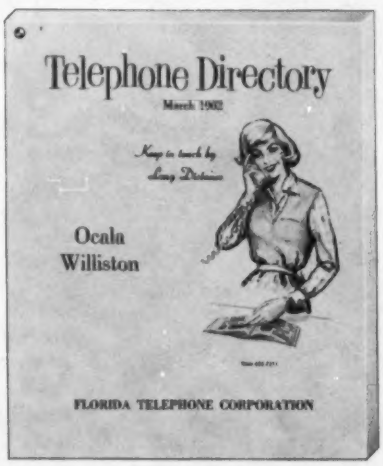

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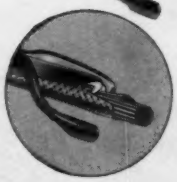

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directly or indirectly, with the government in many areas of endeavors. And let me repeat: With the present, frantic competition for poorly-financed acquisitions, the Independent industry is subject to governmental intervention and "corrective" legislation, the extent of which could be more harsh than necessary in order to serve the interests of those who encourage the hamstringing of private ownership.

To avoid collision with the government, then, and to avoid further government competition, we must work toward *cohesion* within our own industry. It will not be easy. Neither will it be without sacrifice. Typically, some of the innocent will have to suffer, particularly if certain accounting and financing restrictions are imposed on all. Yet unless all of us do sacrifice to obtain cohesion in the industry, we will surely permit a few to hold us upon a collision course with government, the possible consequences of which far overshadow the sacrifices necessary.

Moreover, we can combat further government competition by standing ready to provide any special telecommunications service, any special facility to any governmental agency with speed and efficiency, and at reasonable rates. If we do not, we have no one but ouselves to blame when the governmental agency provides for its own communications needs.

Beyond this, we can educate ourselves and others as to the over-all ramifications of speculative practices in the telephone business. We can create an awareness of these practices among employes, shareholders and industry associates. We can talk to investment bankers and security analysts, pointing out the fallacies of "glamour growth" in regulated telephone company stocks. We can convince regulatory bodies of the seriousness of the problem and indicate possible courses of action.

Most important for the years ahead, however, we can seek out and censure those who are responsible for condoning an atmosphere in which these abusive competitive forces have grown and flourished. And just who is responsible? Who must take the blame? . . . *We*, my friends, You and I.

All through these remarks, we have referred to "the government" as though it were some sort of monster, awaiting its chance to consume us. If this is true, it is *we*, as individual Americans, who are the Frankensteins who have created the monster. We have not *initiated* the fruitless efforts to change the basic laws of economics through legislation, but we have *condoned* them, and thereby permitted the creation of competitive forces that could destroy our Independent existence.

I call, then, for our industry to awaken from its lethargy to meet this challenge as we have met others in the past. Together we can restore high standards of ethics in our business and in our government, provided that we are willing to accept responsibility for such standards within our individual selves.

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Michael A. Pawlak was elected treasurer of Reliable Electric Co., Franklin Park, Ill., at the annual meeting of its Board of Directors. Mr. Pawlak has for several years served as controller and has handled personnel functions for Reliable. He will continue to hold the title of controller.

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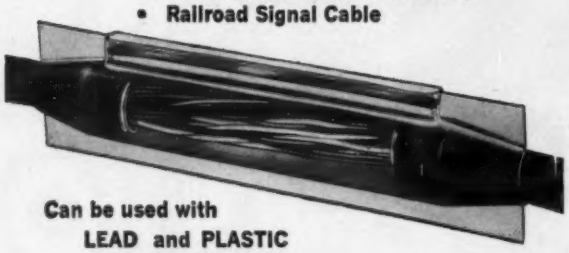

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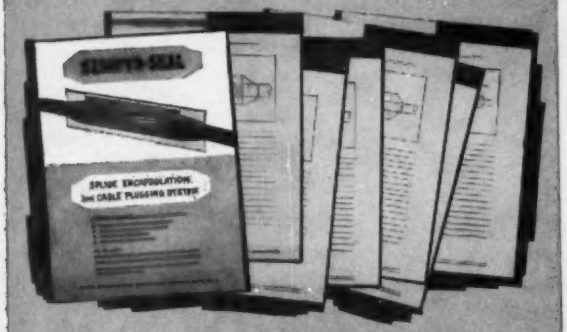

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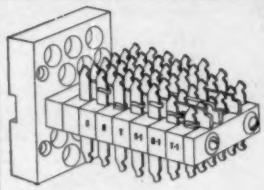


For Six Lug Terminal Block

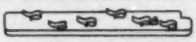
NEW FEATURES

- 5/16" Width—allows more room to work on adjacent lugs.
- Locking Device — prevents interceptor from being disconnected.
- Spring Clips—coated with solder—eliminates possibility of corroding.

S to S1 - R to R1 - T to T1

(STRAIGHT) "YELLOW"

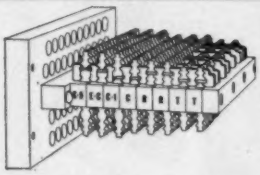
Part No. NY-600



S to S1 - R to T1 - T to R1

(MACHINE) "RED"

Part No. NR-500



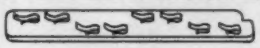
For Eight Lug Terminal Block

NEW FEATURES

- Monarch Interceptor for Eight Lug Terminal Blocks.
- Solder Coated Spring Clips—Exclusive Monarch Process.

(OPEN) "YELLOW"

Part No. GTY-1100



(MACHINE) "RED"

Part No. GTR-1200

MATERIALS: PLASTIC—Hi Impact Thermo Plastic.
SPRING—Stainless Steel, Type 302—Solder coated.

PACKAGING: Six Lug—100 per box, 1600 per shipping carton.
Eight Lug—100 per box, 1000 per shipping carton.

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New Officers Elected At Malleable Iron Fittings

Robert E. S. Thompson has been elected president and general manager of Malleable Iron Fittings Co., Branford, Conn. He replaces T. F. Hammer, grandson of the founder, who has been president for 27 years. Mr. Hammer is assuming the title of chairman of the board.

From left: Albert S. Fehsenfeld, new executive vice president; T. F. Hammer, new chairman of the board; and Robert E. S. Thompson, new president and general manager.

Albert S. Fehsenfeld has been named executive vice president and D. Richard Smith, formerly of Jones and Laughlin Steel Co., has been named assistant to the president.

Mr. Thompson formerly was vice president and director of Gulf States Land and Industries, Inc., and Mr. Fehsenfeld formerly was eastern sales manager of Black and Decker Co.

Management Changes Affect Eight at L. M. Berry

Management changes announced by L. M. Berry and Co., directory advertising firm, have affected the positions of eight men.

M. A. Randall has been appointed district sales manager in the firm's Tennessee division, and will be headquartered in Nashville; E. J. Smith has been transferred from the Mississippi to the Alabama division to become district sales manager of the south Alabama district; H. R. Caufield has moved from the Alabama to the Mississippi division to assume a position as Mississippi district sales manager; and W. E. Orgain has been elevated to district sales manager in the Tennessee division.

The creation of new sales training posts in the two divisions of the company's Wisconsin territory and in the territory itself have resulted in new appointments for three: W. M. Dailey has been appointed sales training manager of the Milwaukee division; O. W. Geier has become sales training manager of the Wisconsin division; and C. W. Pruess has been named telephone sales manager for the Wisconsin territory. An eighth appointment has made H. R. Hommel office manager of the Kansas City office, headquarters for the company's western division operations.

Mr. Randall has been with the directory advertising firm for almost 10 years, having joined the company as a salesman in the Wisconsin division in June of 1953. He became a sales supervisor in the Wisconsin division in 1956, and was elevated to district sales manager in 1959. Mr. Randall was appointed Milwaukee division sales manager the following year, and continued to serve in this capacity until his recent transfer to the Tennessee division.

Mr. Smith started with the firm in February of 1954 as a Mississippi division salesman, and was appointed a sales supervisor for the division in 1957. He was named sales manager for the division late in 1959, and held the position until his recent move to Alabama.

M. RANDALL

E. SMITH

Mr. Caufield has served with L. M. Berry and Co. for more than 12 years, starting with the firm early in 1950 as a salesman in the Alabama division. He was appointed a sales supervisor in 1955, and became district sales manager for the south Alabama district in 1960, a position he held until his recent Mississippi division appointment.

H. CAUFIELD

W. ORGAIN

Mr. Orgain started with the firm in 1948 and spent his early years in sales work in the Alabama and Louisiana divisions. In 1953, he moved to the Mississippi division to become district sales manager, and in 1955 was appointed directory supervisor in the Kentucky division. Mr. Orgain was

transferred from Kentucky to the Tennessee division in 1958, and carried out sales assignments in the division until his recent promotion to district sales manager.

Mr. Dailey has been with the company since 1951, hired as a salesman

W. DAILEY

O. GEIER

in the Wisconsin division in April of that year. He was named sales training supervisor for the Wisconsin division in 1955, and served as training supervisor until his appointment as Milwaukee sales training manager.

Mr. Geier started with the firm in 1957 as a Wisconsin division salesman, then became a district sales manager for the division in 1960, and served in this capacity until his recent training appointment.

Mr. Pruess, hired as a Wisconsin division salesman in 1954, became a district sales manager in the Milwaukee division in 1960, and served as

C. PRUESS

H. HOMMEL

district sales manager until his most recent territory appointment.

Mr. Hommel, who joined the company in 1957, carried out sales assignments from 1957 until January of this year. In January he was transferred from the sales to the clerical department, then became division office manager in May.

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15 SWITCHBOARD, Kellogg Cordless #1007 Type with 5 Trunks 12 Stations and 5 Connecting Circuits. (Like New).

60 SWITCH, Linefinder A.E. #H-51106-A or D-205174-A. As removed from equipment-in good condition.

10 Group Relays A.E. #H-35760 Fig. 3 or #D-856956-A (NEW)

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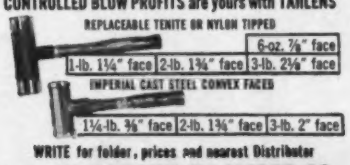

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2035 S. W. 58th Ave., Portland 1, Ore.

BELL LABORATORIES' NEW CONNECTOR STREAMLINES CABLE SPLICING

Telephone craftsman uses special pneumatic tool to flatten connector onto insulated wires. Metal tangs pierce insulation and produce a splice that is equivalent to a soldered joint.

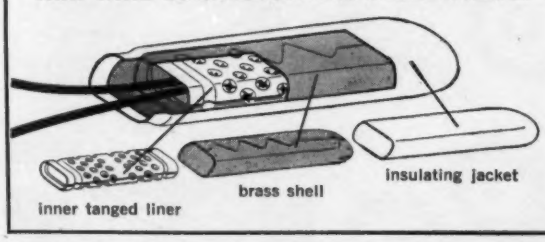
Along the cable routes of the Bell System, wires are spliced at a rate of 250,000,000 a year. Conventionally, connections are made by "skinning" the insulation, twisting the bare wires together, and slipping on an insulating sleeve. Now, with a new connector initiated at Bell Telephone Laboratories, (diagram at lower right) splices can be made faster, yet are even more reliable.

The craftsman slips the two wire ends—with insulation intact—into the connector, then flattens the connector with a pneumatic tool. Springy phosphor bronze tangs inside the connector bite through the insulation to contact the copper wire. The stable, low-resistance splice established is maintained for many years, even under conditions of high humidity, corrosive atmospheres and vibration.

Ultrasensitive measuring techniques devised by our engineers demonstrate that the new connector provides the equivalent of a soldered connection, even with voltages as low as 25 millionths of a volt.

Working with our manufacturing partners at Western Electric, our engineers developed this connector into a design capable of being mass-produced at low cost. It is being introduced in the Bell System.

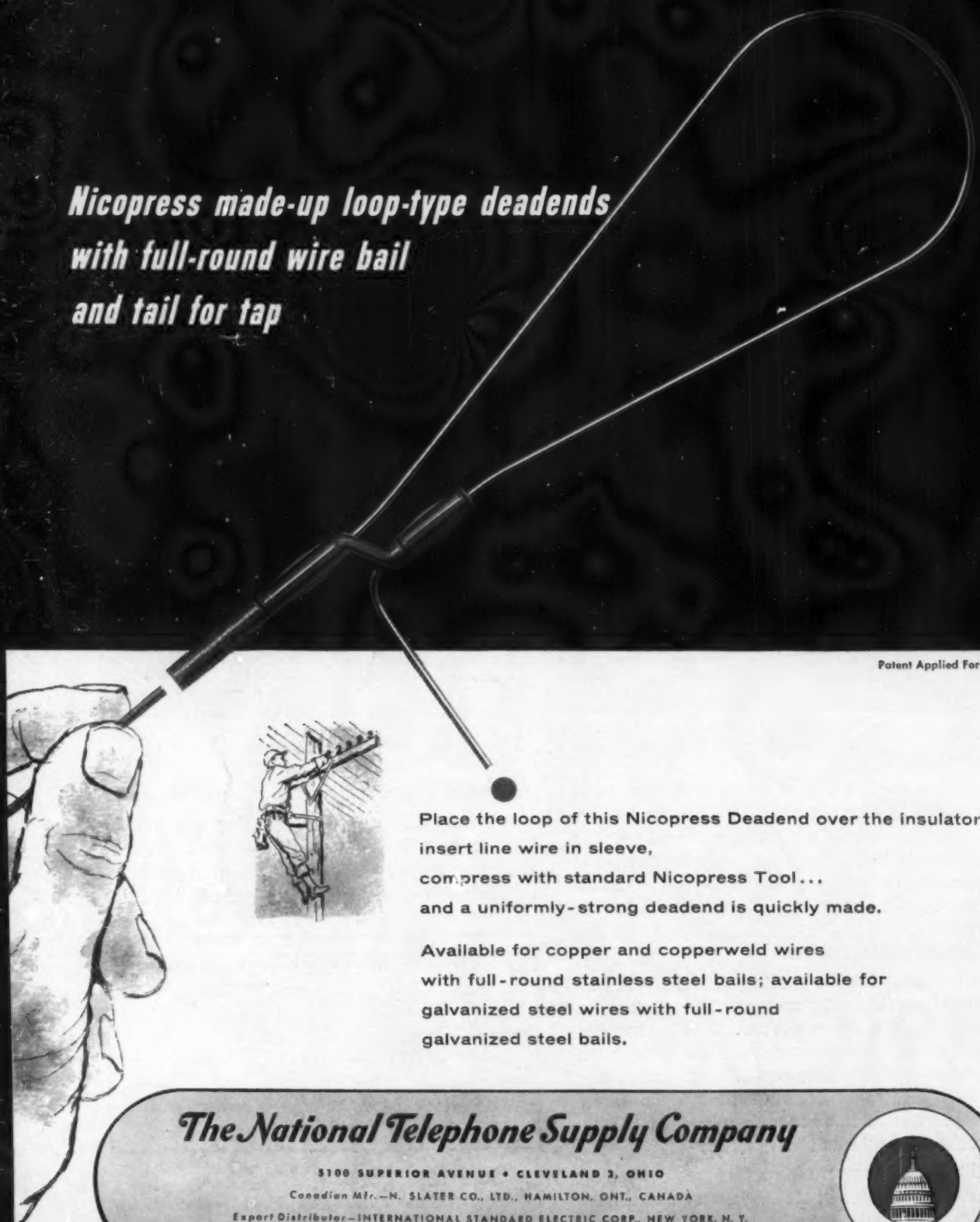
NEW WIRE CONNECTOR HAS THREE PARTS:



BELL TELEPHONE LABORATORIES

World center of communications research and development

Nicopress made-up loop-type deadends with full-round wire bail and tail for tap



Patent Applied For

Place the loop of this Nicopress Deadend over the insulator...
insert line wire in sleeve,
compress with standard Nicopress Tool...
and a uniformly-strong deadend is quickly made.

Available for copper and copperweld wires
with full-round stainless steel bails; available for
galvanized steel wires with full-round
galvanized steel bails.

The National Telephone Supply Company

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